Published in final edited form as:

Am J Health Promot. 2018 January ; 32(1): 153–160. doi:10.1177/0890117116686887.

Sources and number of coupons for cigarettes and snus received by a cohort of your adults

Kelvin Choi, PhD, MPH,

Division of Intramural Research, National Institute on Minority Health and Health Disparities,
Address: 9000 Rockville Pike, Bethesda, MD 20892, USA, kelvin.choi@nih.gov, Telephone:
301-496-3400

Naomi Taylor, MPH, and

Division of Epidemiology and Community Health, University of Minnesota, Address: 1300 South
Second Street Suite 300, Minneapolis, MN 55454, naomitaylor@umn.edu, Telephone:
402-321-4875

Jean Forster, PhD, MPH

Division of Epidemiology and Community Health, University of Minnesota, Address: 1300 South
Second Street Suite 300, Minneapolis, MN 55454, forst001@umn.edu, Telephone: 612-626-8864

Abstract

Purpose—To examine the sources of tobacco coupons and their influence on susceptibility to snus use.

Design—Cohort study

Setting—Minnesota Adolescent Community Cohort Study

Subjects—A population-based sample of US Midwest young adults in 2011–2012 and 2012–2013 (aged 22–28; n=2384)

Measures—Exposure to coupons for various tobacco products through various sources in the past six months, susceptibility to snus use.

Analysis—Multiple logistic regressions

Results—During the six months prior to 2012–2013 survey, 11% of the sample received coupons for cigarettes, 5% received coupons for snus, 3% received coupons for other smokeless tobacco products, and <1% received coupons for little cigars. Direct mail was the most commonly cited source of cigarette and snus coupons. Tobacco product packaging provided the highest number of tobacco coupons for current and former smokers. Participants without a four-year college education (compared to those who had a 4-year college education) were more likely to have received coupons for cigarettes and snus, and received more coupons for both products ($p<0.05$). Racial/ethnic minority young adults (vs. non-Hispanic White) received more cigarette and snus coupons ($p<0.05$). Receiving snus coupons was positively associated with susceptibility to snus use ($p<0.05$).

Conclusion—Tobacco companies are successful in reaching young adults using coupons for various tobacco products. Snus coupons may influence snus use, similar to how cigarette coupons influence smoking.

Keywords

Tobacco marketing; young adults; snus; susceptibility

Indexing Key Words

Manuscript format: Research; Research purpose: modeling/relationship testing, descriptive; Study design: non-experimental; Outcome measure: cognitive; Setting: state/national; Health focus: smoking control; Strategy: built environment; Target population age: adults; Target population circumstances: education/income level, race/ethnicity

PURPOSE

Tobacco use is the number one preventable cause of deaths in the United States, claiming at least 480,000 lives every year.¹ Previous systematic reviews concluded that tobacco marketing promotes smoking behaviors.^{2, 3} Tobacco companies are increasingly invested in tobacco coupons as a marketing strategy to promote their products. In 2012, tobacco companies spent US\$277 million on tobacco coupons (\$240 million on coupons for cigarettes, \$37 million on coupons for smokeless tobacco, e.g., chewing tobacco and snus), a 32% increase in expenditure from 2011, while the total marketing expenditure only increased by only 9% between 2011 and 2012.^{4, 5} Although coupons represent about 3% of the total marketing expenditure (US\$9.6 billion), they are capable of reaching the population. A previous study among Minnesota adult smokers found that 49% of the sample had received tobacco coupons in the previous 12 months,⁶ and a national study found that 13% of US middle and high school students were exposed to coupons for various tobacco products in the previous 30 days.⁷ More concerning is that studies have shown that tobacco coupons promote tobacco use behaviors. For example, previous longitudinal studies have shown that exposure to tobacco direct mail (87% of which contain at least one tobacco coupon, with an average saving of US\$4.17 per mailing)⁸ promotes smoking behaviors in adolescent and young adults,^{9, 10} and redemption of cigarette coupons hinders smoking cessation among adult smokers.⁶ Therefore, it is important to further examine the exposure to and the effect of tobacco coupons, particularly among young adults who are still developing their tobacco use behaviors.¹¹

There are several limitations in the literature related to tobacco coupons. First, sources of tobacco coupons have not been fully examined in the literature. Previous studies among adults either did not examine source of tobacco coupons,⁶ or only examined one source of exposure to tobacco coupons (e.g., direct mail^{9, 10, 12}). Second, previous studies either did not specify the tobacco products that the coupons were promoting,^{7, 9, 12, 13} or focused on coupons for a particular product (e.g., cigarette coupons⁶). Third, little is known about the characteristics of those who receive tobacco coupons through different sources. Fourth, no study to date has examined the effect of coupons for tobacco products other than cigarettes

on tobacco use behaviors, while 93% of Marlboro mailings and 72% of Camel mailings in 2011–2012 promoted snus, a novel smokeless tobacco product.⁸

In light of these limitations, we examined the sources and number of coupons for different tobacco products and the characteristics associated with receiving these coupons overall and through various sources among a US regional sample of young adults. In addition, we examined the association between receiving snus coupons and susceptibility to snus use among young adults who had never used snus. Findings from this study would improve understanding of how tobacco companies distribute their coupons, and the potential impact of snus coupons on snus use, which could inform regulations on this marketing strategy.

METHODS

Design

The design of the Minnesota Adolescent Community Cohort (MACC) Study has been reported in detail elsewhere.¹⁴ Briefly, in 2000–2001, 3636 adolescents (12 to 16 years old) living in Minnesota were recruited from 60 randomly selected geopolitical units (GPUs) out of 126 in the state. Modified random digit dialing and a combination of probability and quota sampling methods were used in each GPU to sample participants to achieve an even distribution of youth across ages 12 to 16. Additionally, 605 adolescents of the same ages were recruited from comparison states (Kansas, Michigan, North and South Dakota) using the same sampling method. The overall recruitment rate was 59%. In 2001–2012, an additional cohort of 583 12-year-olds was added from previously selected Minnesota GPUs (recruitment rate of 64%), provided a total sample of 4,824 adolescents. Participants were followed and surveyed through computer assisted telephone interviews (CATI) every six months through 2007–2008 and then every twelve months between 2008 and 2013 using the phone numbers provided by the participants (including mobile phone numbers).

Sample

Two analytic samples were drawn from the MACC study. First, in the descriptive analyses on sources for tobacco coupons, we included Minnesota and comparison cohort participants who completed data collection during October 2012 – March 2013 (aged 22–28; n=2384; response rate=67.6%). Second, in the analyses to examine predictors of receiving tobacco coupons and its association with susceptibility to snus use, we included those participants who also participated in the previous round of data collections during October 2011 – March 2012 (n=2059). Participants who were lost to follow-up between two rounds of data collections were more likely to be racial/ethnic minorities and have less than a college degree ($p<0.05$). The University of Minnesota Institutional Review Board approved this study. Participants received a \$25 incentive for participating in the each survey.

Measures

Demographics (e.g., age, race/ethnicity, gender, education) were collected in both rounds of data collection. Age was calculated from their birthdates and they dates they took the survey. Race/ethnicity was categorized as non-Hispanic White vs. others given the small number of participants in the minority populations, reflective of the racial/ethnic composition of

Minnesota. Tobacco use behaviors were assessed in 2011–2012. Participants were categorized as smokers if they had smoked ≥100 cigarettes in their lifetime and any cigarettes in the past 30 days, as former smokers if they had smoked ≥100 cigarettes in their lifetime but none in the past 30 days, and as nonsmokers if they had smoked <100 cigarettes in their lifetime. In two separate sets of questions, participants were asked if they had heard of and had ever used snus and e-cigarettes. Snus was referred to the participants as “a tobacco product that is chewing tobacco in little white pouches to be put between your gum and cheek,” and e-cigarettes were referred to the participants as “a cigarette-looking electronic device that delivers nicotine vapor when you puff it.” For each product, participants were categorized as having ever used it or never used it.

In 2012–2013, participants were asked if they had received an advertisement, coupon, or gift for tobacco products in the past six months. If they had, they were asked to indicate what items they received on a list that included advertisements for various tobacco products, coupons for various tobacco products, and free giveaways. They were also asked if those coupons were for cigarettes, snus, other smokeless tobacco products, and little cigars. If they had received coupons for cigarettes, they were asked to identify all sources of these coupons, and the number of times they received these coupons in the past six months through each source: in the mail from tobacco companies, in the mail with other coupons (not from tobacco companies), in the packaging of tobacco products, at the store separate from tobacco products, over the Internet, and from friends/family. We also assessed the sources of snus coupons, and number of snus coupons received. We calculated the number of coupons received for cigarette and snus separately based on the responses to these questions.

Finally, susceptibility to snus use was first assessed in 2012–2013 by asking the participant if they were thinking to start using snus soon, if they thought they would be using snus in the next 12 months, and if they would use snus if offered by a friend (options: highly unlikely, somewhat unlikely, neither likely or unlikely, somewhat likely, highly likely). Participants who answered “highly unlikely” to all three items were classified as not susceptible to snus use, otherwise were classified as susceptible to snus use.

Analysis

Descriptive statistics are provided for sources of cigarette and snus coupons. We used multiple logistic regression models to assess the associations between independent variables (demographics, smoking status, snus and e-cigarette use) and receipt of coupons for cigarettes (from any source and each specific source) and coupons for snus (from any source) in separate models. We were unable to assess the predictors for receiving snus coupons from each specific source given the small number of participants who received snus coupons. We used multiple Poisson regression models to assess the associations between independent variables and the total number of coupons received in the past six months for cigarettes and snus in separate models. Lastly, we used multiple logistic regression models to assess the association between receiving snus coupons and susceptibility to snus use measured in 2012–2013 among those who had heard of but never tried snus prior to 2011–2012 data collection, adjusting for demographics. All the models included GPU as a random

effect to control for cluster sampling. Analyses were conducted with SAS® 9.2¹⁵ using PROC GLIMMIX.

RESULTS

The demographic and tobacco use characteristics of the 2012–2013 cross-sectional sample and the 2011–2013 longitudinal samples are summarized in Table 1. Overall, 13.7% (n=326) of the sample had received an advertisement, gift, or coupon for a tobacco product during the six months prior to the 2012–2013 data collection. This prevalence varied by smoking status, with 36.0% of current smokers, 16.8% former smokers, and 6.6% of nonsmokers who reported receiving these materials. Specific to products promoted in the coupons, 10.5% had received cigarette coupons (n=250), 5.4% (n=128) had received snus coupons, 2.9% (n=68) received coupons for other smokeless tobacco products, and 0.3% received coupons for little cigars (n=6) during the six months prior to the 2012–2013 data collection.

Major sources of cigarette coupons appeared to vary somewhat by smoking status (Table 2). The top three most common sources of cigarette coupons for current smokers were direct mail from a tobacco company (30.2%), in the packaging of tobacco products (13.0%), and from friends/family (8.6%), while among former smokers they were direct mail from a tobacco company (12.0%), in the packaging of tobacco products (2.2%), and at the store (2.0%); and among nonsmokers coupons were in direct mail from a tobacco company (2.4%), in the mail with other coupons (1.0%), and over the Internet (0.4%). The source delivered the highest number of cigarette and snus coupons was packaging of tobacco products (Table 2). Of smokers who had received coupons in that manner, the median number of cigarette coupons received in the past 6 months was 10, with a maximum of 200. It is also the channel that delivered the highest median number of snus coupons to the participants, regardless of smoking status.

Given the low prevalence of receiving coupons for tobacco products other than cigarettes and snus, we were only able to examine the characteristics associated with receiving cigarette coupons by source and receiving snus coupons overall. Participants were more likely to have received cigarette coupons overall if they were female (vs. male), had not enrolled or completed 4-year college education (vs. enrolled or completed 4-year college education), ever used e-cigarettes (vs. never), and were current or former smokers (vs. nonsmokers) ($p<0.05$; Table 3). Predictors of receiving cigarette coupons differed somewhat by source. Older participants were more likely to have received cigarette coupons through tobacco direct mail; male participants were less likely to have received cigarette coupons from tobacco direct mail and at the store; and participants of racial/ethnic minorities were more likely than non-Hispanic White to have received coupons in the mail with other coupons and at the store ($p<0.05$). Participants of lower education were more likely than those who enrolled or completed a 4-year college education to have received cigarette coupons from tobacco direct mail and in packaging of tobacco product ($p<0.05$). Regarding tobacco use behaviors measured in 2011–2012, ever using snus was associated with receipt of cigarette coupons through tobacco product packaging in 2012–2013; ever using e-cigarettes positively predicted receipt of cigarette coupons through tobacco direct mail, over the Internet, and from friends/family; current smoking consistently predicted receipt of

cigarette coupons through all sources except the Internet, while former smoking predicted receipt cigarette coupons through direct mail, tobacco product packaging, and retail stores ($p<0.05$). Pertaining to receipt of snus coupons, being a racial/ethnic minority, having more than high school but less than 4-year college education, and being current and former smokers were associated with increased likelihood of receiving snus coupons overall.

Table 4 shows the adjusted incidence rate ratio for receiving cigarette and snus coupons. Participants who were racial/ethnic minorities (vs. non-Hispanic White), had less than 4-year college education (vs. enrolled or completed 4-year college), ever used snus (vs. never), ever use e-cigarettes (vs. never), and were current and former smokers reporting receiving cigarettes and snus coupons at higher rates (Table 4; $p<0.05$). Older participants reported receiving cigarette coupons at a lower than but receiving snus coupons at a higher rate compared to younger participants ($p<0.05$). Male participants received cigarettes coupons at a lower rate than female participants ($p<0.05$). Finally, among participants who had heard of but never tried snus, those who received snus coupons were significantly more likely than those who did not receive snus coupons to be susceptible to snus use (9.4% vs. 5.2%; adjusted odds ratio=2.62, 95% confidence interval= 1.04, 6.58).

DISCUSSION

Few studies have examined exposure to tobacco coupons in general^{7, 9, 12, 13} or to cigarette coupons specifically.^{6, 10} Little is known about exposure to product-specific coupons. We found that, in our sample of young adults originally from the US Midwest, 10.5% had received cigarette coupons, 5.4% had received snus coupons, 2.9% received coupons for other smokeless tobacco products, and 0.3% received coupons for little cigars during the six months prior to the 2012–2013 data collection. Additionally, 30% of current smokers, 12% of former smokers, and 2% of nonsmokers reported exposure to cigarette coupons; and 15% of current smokers, 5% of former smokers, and 1% of nonsmokers reported exposure to snus coupons in the past six months. We were unable to examine the variation among coupons for other tobacco products by smoking status because of the low prevalence of receiving these coupons. The low prevalence of receiving tobacco coupons among non-smokers could be partly due to their lack of interests in these coupons, which could lead to lower likelihood of remembering receiving these coupons. Nonetheless, the magnitude of the difference in prevalence between non-smokers and smokers is too large to be solely explained by this attentional bias. It is possible that current smokers may seek cigarette coupons as a means to control their cigarette expenditure.¹⁶ However, our findings that former smokers were exposed to cigarette and snus coupons could be potentially problematic. A previous analysis showed that exposure to cigarette coupons distributed through direct mail was associated with subsequently becoming current smokers among young adults who were nonsmokers/former smokers at baseline among young adults, suggesting that exposure to cigarette coupons may induce former smokers to return to smoking.¹⁰ The relatively higher exposure to snus coupons among former smokers than nonsmokers observed in our study may suggest that tobacco companies may be promoting non-cigarette tobacco products to former smokers to entice former smokers to use alternative tobacco products. An examination into the tobacco industry internal documents may reveal whether the tobacco companies have employed this marketing strategy in the past.

Our findings also add to the knowledge about sources of cigarettes and snus coupons in the literature. Direct mail from the tobacco companies was the most commonly cited source for cigarette and snus coupons among our young adult participants, not surprisingly given it is one of the previously reported marketing strategies tobacco companies use to distribute coupons.⁸ However, the availability of cigarette and snus coupons on the product packaging is rarely reported in the literature. Only one study among US youth reported that 3.7% of them were exposed to tobacco coupons through product packaging.⁷ We found that tobacco packaging was a commonly cited source for cigarette and snus coupons, particularly among current and former smokers. It was also the source that distributed the highest number of cigarettes and snus coupons. It is important to recognize this source of tobacco coupons because they are made available at the time of purchase, which makes it convenient for consumers to redeem these coupons. Thus, these coupons may influence the consumers the same ways as point-of-sale tobacco promotions, which are known to trigger impulse purchasing among smokers and urges to restart smoking among former smokers.¹⁷

Characteristics associated with exposure to tobacco coupons somewhat varied by product promoted (cigarettes vs. snus) and/or by sources. It is an interesting finding that compared to young adults in our sample who never tried e-cigarettes, those who ever tried e-cigarettes were more likely to subsequently report receiving cigarette coupons, and receiving a higher number of cigarettes and snus coupons. Perhaps, e-cigarette ever users represent sensation seekers who are likely to try new products, and therefore more likely to seek out coupons for snus since it is another relatively novel tobacco product in the US. It is also possible that tobacco companies may be marketing cigarettes and snus to e-cigarette users, particularly when major tobacco companies (e.g., Altria, RJ Reynolds) are selling all these products. Further surveillance of these marketing activities is necessary to determine the occurrence of cross-product marketing and its influence on tobacco use behaviors. We also found that young adults who ever used snus were subsequently exposed to higher number of snus coupons than those who never used snus. This may indicate that snus users seek snus coupons provided by the tobacco companies as they develop the snus use behaviors, but it is also possible tobacco companies could be targeting them with snus coupons given their snus use. It also noteworthy that compared to young adults with four-year college education, those with less than four-year college education were more likely to receive cigarette and snus coupons and a higher number of these coupons. Similarly, young adults from racial/ethnic minority groups received more coupons than non-Hispanic White young adults. Given the known effects of cigarette coupons on promoting and sustaining smoking behaviors,^{6, 9, 10} the differential exposure to cigarette and snus coupons by education and by race/ethnicity may perpetuate the known tobacco use disparities among young adults.^{11, 18, 19}

Lastly, we observed that among young adults who had never used snus, exposure to snus coupons was associated with susceptibility to snus use. Because exposure to snus coupons and susceptibility to snus use were measured in the same round of data collection, it is possible that young adults who were interested in trying snus sought snus coupons to reduce the cost of experimentation with the product. At the same time, frequent exposure to snus coupons may also increase young adults' curiosity about a relatively novel tobacco product, which may lead them to experiment with it, as suggested by marketing theory.²⁰ If future

longitudinal studies confirm that exposure to snus coupons among never tobacco users is associated with subsequent snus use, it may be important to prohibit the redemption of these coupons to protect public health.

Since most of the young adults in our sample were non-Hispanic White and originally from the US Midwest, our findings may not be generalizable to more racial/ethnically diverse young adult populations. Because exposure to cigarette and snus coupons were assessed through self-report, participants may not be able to accurately recall the number of coupons they received for each product. Nonetheless, previous research has used self-report to assess adolescent exposure to different sources of tobacco coupons.⁷ We did not access receipt of e-cigarette coupons in our study. Future studies are need to examine exposure to e-cigarette coupons to determine if the strategy is employed by e-cigarette retailers. Attrition also may have introduced bias in assessing the associations between characteristics associated with the exposure and the association between exposure to snus coupons and susceptibility to snus use. We controlled for correlates associated with attrition in our analyses to meet the missing at random assumption, and therefore our estimates on these associations should not be severely biased. Finally, we did not collection information on peer snus use, which may be a confounder between receipt of snus coupons and susceptibility to snus use. However, our data showed that <1% of participants received snus coupons from friends/family, which may indicate that very few of them have friends/family that use snus.

In conclusion, young adults in our sample received cigarettes and snus coupons through multiple sources, with tobacco direct mail being the most commonly cited source and tobacco product packaging distributing the highest number of coupons for both products. Characteristics associated with the exposure varied somewhat by product and by source. Exposure to snus coupons among never users of snus was associated with susceptibility to snus use. Future studies need to examine if exposure to snus coupons is associated with subsequent snus use, and whether restrictions on redemption of tobacco coupons would reduce young adults' exposure to these coupons.

Acknowledgments

The study is funded by the National Cancer Institute (grant R01 CA86191; Principal Investigator: Dr. Jean Forster). Dr. Choi's effort is supported by the Division of Intramural Research, National Institute on Minority Health and Health Disparities, National Institutes of Health. The data for the analysis were collected when Dr. Choi was at the University of Minnesota. The opinions expressed in this article are the authors' own and do not reflect the view of the National Institutes of Health, the Department of Health and Human Services, or the U.S. government.

REFERENCES

1. U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2014. The Health Consequences of Smoking -- 50 Years of Progress. A Report of the Surgeon General.
2. Pierce JP. Tobacco industry marketing, population-based tobacco control, and smoking behavior. *Am J Prev Med.* 2007 Dec; 33(6 Suppl):S327–S334. [PubMed: 18021907]
3. National Cancer Institute. Bethesda, MD: U.S. Department of Health and Human Services, National Institutes of Health, National Cancer Institute; 2008. The Role of the Media in Promoting and Reducing Tobacco Use. Tobacco Control Monograph No. 19.

4. Federal Trade Commission. Cigarette Report for 2012. Washington, DC: Federal Trade Commission; 2015.
5. Federal Trade Commission. Smokeless Tobacco Report for 2012. Washington, DC: Federal Trade Commission; 2015.
6. Choi K, Hennrikus DJ, Forster JL, Moilanen M. Receipt and redemption of cigarette coupons, perceptions of cigarette companies and smoking cessation. *Tobacco control*. 2013 Nov; 22(6):418–422. [PubMed: 23047886]
7. Tessman GK, Caraballo RS, Corey CG, Xu X, Chang CM. Exposure to tobacco coupons among U.S. middle and high school students. *Am J Prev Med*. 2014 Aug; 47(2 Suppl 1):S61–S68. [PubMed: 25044197]
8. Brock B, Schillo BA, Moilanen M. Tobacco industry marketing: an analysis of direct mail coupons and giveaways. *Tob Control*. 2014 Jul 22.
9. Choi K, Forster J. Tobacco direct mail marketing and smoking behaviors in a cohort of adolescents and young adults from the u.s. Upper midwest: a prospective analysis. *Nicotine & tobacco research : official journal of the Society for Research on Nicotine and Tobacco*. 2014 Jun; 16(6): 886–889. [PubMed: 24532353]
10. Choi K, Forster JL. Frequency and Characteristics Associated With Exposure to Tobacco Direct Mail Marketing and Its Prospective Effect on Smoking Behaviors Among Young Adults From the US Midwest. *Am J Public Health*. 2014 Nov; 104(11):2179–2183. [PubMed: 25211739]
11. U.S. Department of Health and Human Services. Atlanta, GA: U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2012. Preventing Tobacco Use Among Youth and Young Adults: A Report of the Surgeon General.
12. Soneji S, Ambrose BK, Lee W, Sargent J, Tanski S. Direct-To-Consumer Tobacco Marketing and Its Association With Tobacco Use Among Adolescents and Young Adults. *The Journal of adolescent health : official publication of the Society for Adolescent Medicine*. 2014 Mar 21.
13. Lewis MJ, Manderski MTB, Delnevo CD. Tobacco industry direct mail receipt and coupon use among young adult smokers. *Preventive Medicine*. 2015 Feb; 71:37–39. [PubMed: 25511177]
14. Forster J, Chen V, Perry C, Oswald J, Willmorth M. The Minnesota Adolescent Community Cohort Study: design and baseline results. *Prev Sci*. 2011 Jun; 12(2):201–210. [PubMed: 21360063]
15. SAS [computer program]. Version 9.2. Cary, NC: SAS Institute Inc.; 2009.
16. Choi K, Hennrikus D, Forster J, St Claire AW. Use of price-minimizing strategies by smokers and their effects on subsequent smoking behaviors. *Nicotine Tob Res*. 2012 Jul; 14(7):864–870. [PubMed: 22193571]
17. Paynter J, Edwards R. The impact of tobacco promotion at the point of sale: a systematic review. *Nicotine Tob Res*. 2009 Jan; 11(1):25–35. [PubMed: 19246438]
18. Solberg LI, Asche SE, Boyle R, McCarty MC, Thoele MJ. Smoking and cessation behaviors among young adults of various educational backgrounds. *Am J Public Health*. 2007 Aug; 97(8): 1421–1426. [PubMed: 17600256]
19. Berg CJ, An LC, Thomas JL, et al. Smoking patterns, attitudes and motives: unique characteristics among 2-year versus 4-year college students. *Health Educ Res*. 2011 Aug; 26(4):614–623. [PubMed: 21447751]
20. Rothschild ML, Gaidis WC. Behavioral Learning Theory: Its Relevance to Marketing and Promotions. *Journal of Marketing*. 1981; 45(2):70–78.

SO WHAT?

What is already known on this topic?

Many smokers receive cigarette discount coupons from tobacco companies, and receipt of these coupons are associated with promoting smoking progression and hindering smoking cessation. However sources and number of coupons for all tobacco products have not been documented.

What does this article add?

We found that young adults receive discount coupons for almost all types of tobacco products. Direct mail is the most commonly cited source while tobacco product packages deliver highest number of coupons for cigarettes and snus. Exposure to snus coupons is associated with susceptibility to use the product.

What are the implications for health promotion practice or research?

Given the numbers of tobacco coupons received by young adults and the associated savings on tobacco products, prohibiting redemption of all tobacco coupons could reduce the prevalence of tobacco use in this price-sensitive population. Future research needs to evaluate the impact of such policy.

Table 1

Sample characteristics, Minnesota Adolescent Community Cohort (MACC) Study, 2011–2013.

Characteristics	Cross-sectional sample (2012–2013; n=2384)		Longitudinal sample (2011–2013; n=2059)	
	N	%	N	%
Age (years) *	26.1	1.7	25.1	1.7
Gender				
Male	1117	46.9%	970	47.1%
Female	1267	53.1%	1089	52.9%
Race/ethnicity				
Non-Hispanic White	2145	90.0%	1859	90.3%
Other	239	10.0%	200	9.7%
Education				
High school or less	317	13.3%	280	13.6%
>High school but no 4-year college degree	635	26.7%	498	24.2%
Enrolled or graduated from a 4-year college	1426	60.0%	1278	62.2%
Tobacco use behaviors in 2011–2012				
Smoking status				
Current smoker	--	--	376	18.3%
Former smoker	--	--	269	13.1%
Non-smoker	--	--	1414	68.6%
Ever used snus	--	--	305	14.7%
Ever use electronic cigarettes	--	--	210	10.2%

* Mean and standard deviation presented.

Table 2

Prevalence and number of cigarette and snus coupons received through different sources in a young adult sample, Minnesota Adolescent Community Cohort (MACC) Study, 2012–2013 (n=2384).

% received coupon for...	Current smokers (N=453)		Former smokers (N=358)		Nonsmokers (N=1573)	
	Cigarettes	Snus	Cigarettes	Snus	Cigarettes	Snus
In the mail from tobacco company	30.2%	15.0%	12.0%	4.8%	2.4%	1.0%
In the mail with other coupons	7.5%	5.5%	1.1%	0.6%	1.0%	0.3%
In the packaging of tobacco products	13.0%	5.3%	2.2%	0.3%	0.1%	0.1%
At the store	2.4%	0.4%	2.0%	0.7%	0.3%	0.3%
Over the Internet	3.8%	0.9%	0.3%	0.0%	0.4%	0.1%
From family/friends	8.6%	0.9%	1.4%	0.6%	0.1%	0.0%
Number of coupons received in past 6 months (median / range)						
In the mail from tobacco company	3 (1 – 30)	3 (1 – 50)	2 (1 – 30)	2 (1 – 30)	2 (1 – 24)	2 (1 – 12)
In the mail with other coupons	2 (1 – 24)	3 (1 – 25)	1.5 (2 – 2)	2 (1 – 3)	2 (1 – 24)	2 (1 – 12)
In the packaging of tobacco products	10 (1 – 200)	6 (1 – 30)	3 (1 – 23)	1.5 (1 – 2)	5.5 (1 – 10)	12 (12 – 12)
At the store	2 (1 – 88)	3 (1 – 5)	1.5 (1 – 2)	2 (2 – 2)	2 (1 – 12)	1 (1 – 6)
Over the Internet	4 (1 – 10)	4 (2 – 10)	2 (1 – 2)	0	4 (1 – 12)	2 (2 – 2)
From family/friends	2 (1 – 20)	2 (2 – 3)	5 (1 – 10)	2 (2 – 2)	2 (2 – 2)	0
Total number of coupons received through all sources	6 (1 – 204)	5.5 (1 – 62)	3 (1 – 33)	3 (1 – 30)	2 (1 – 58)	2 (1 – 24)

Table 3

Characteristics associated with receiving cigarette coupons overall and by sources and snus coupons overall in the past six months in a US Midwest young adult sample, Minnesota Adolescent Community Cohort (MACC) Study, 2011–2013 (n=2059).

	Receiving cigarettes coupons...				Receiving snus coupons...			
	in the mail from tobacco companies	in the mail with other coupons	in tobacco product packaging	at the store	over the Internet	from friends/family	from any source	from any source
Independent variables	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)	AOR (95% CI)
Age	1.11 (1.00, 1.23)	1.12 (0.93, 1.34)	0.93 (0.78, 1.12)	0.87 (0.65, 1.17)	1.14 (0.86, 1.51)	0.96 (0.78, 1.18)	1.07 (0.97, 1.18)	1.06 (0.93, 1.20)
Race/ethnicity								
Other	1.37 (0.81, 2.33)	2.53 (1.15, 5.57)	2.34 (0.99, 5.54)	378 (1.25, 11.42)	1.94 (0.53, 7.16)	2.01 (0.76, 5.36)	1.49 (0.91, 2.45)	2.02 (1.11, 3.70)
Non-Hispanic White	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Gender								
Male	0.61 (0.41, 0.89)	0.56 (0.28, 1.13)	0.55 (0.26, 1.15)	0.26 (0.07, 0.93)	0.90 (0.91, 2.60)	0.64 (0.29, 1.43)	0.55 (0.38, 0.80)	0.67 (0.41, 1.08)
Female	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Education								
High school	1.88 (1.18, 3.00)	1.74 (0.76, 3.99)	2.91 (1.28, 6.65)	1.68 (0.41, 6.82)	1.58 (0.48, 5.18)	1.77 (0.74, 4.26)	1.79 (1.15, 2.79)	1.48 (0.83, 2.62)
>High school, <4 year college	2.29 (1.54, 3.39)	1.76 (0.86, 3.60)	2.05 (0.91, 4.59)	2.44 (0.78, 7.66)	1.06 (0.33, 3.34)	1.22 (0.51, 2.91)	2.12 (1.47, 3.07)	1.83 (1.12, 2.97)
In 4-yr college or more	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Snus use								
Ever tried snus	1.07 (0.68, 1.71)	2.18 (0.99, 4.77)	2.15 (1.00, 4.59)	0.68 (0.12, 3.72)	2.12 (0.69, 6.56)	0.94 (0.38, 2.30)	1.16 (0.75, 1.81)	1.61 (0.94, 2.77)
Never tried snus	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
E-cigarette use								
Ever tried	2.05 (1.36, 3.10)	1.82 (0.86, 3.83)	1.85 (0.98, 3.51)	1.91 (0.64, 5.73)	4.58 (1.58, 13.28)	2.47 (1.20, 5.08)	1.97 (1.32, 2.94)	1.42 (0.87, 2.34)
Never tried	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Smoking status								
Current smoker	8.48 (5.41, 13.30)	3.60 (1.65, 7.83)	45.06 (10.26, 197.92)	11.69 (2.78, 49.24)	2.85 (0.83, 9.85)	44.47 (9.88, 200.11)	7.53 (4.96, 11.43)	9.62 (5.47, 16.91)
Former smoker	4.46 (2.72, 7.30)	1.63 (0.63, 4.23)	13.50 (2.70, 67.44)	8.13 (1.80, 36.62)	1.02 (0.19, 5.58)	4.50 (0.61, 33.00)	4.01 (2.53, 6.34)	3.53 (1.81, 6.87)

Receiving cigarettes coupons...					Receiving snus coupons...				
in the mail from tobacco companies					from any source				
in the mail with other coupons					from friends/family				
at the store					over the Internet				
in tobacco product packaging					AOR (95% CI)				
AOR (95% CI)					AOR (95% CI)				
Independent variables					AOR (95% CI)				
Nonsmoker					1.00				
					1.00				

Adjusted for all variables in the model.
Bolded estimates were statistically significant (p<0.05).
AOR=adjusted odds ratio. CI=confidence interval.

Table 4

Characteristics associated with rate of receiving cigarette and snus coupons in the past six months in a young adult sample, Minnesota Adolescent Community Cohort (MACC) Study, 2011–2013 (n=2059).

Independent variables	Cigarette coupons	Snus coupons
	AIRR (95% CI)	AIRR (95% CI)
Age	0.93 (0.90, 0.95)	1.09 (1.03, 1.14)
Race/ethnicity		
Other	1.87 (1.62, 2.17)	3.40 (2.70, 4.27)
Non-Hispanic White	1.00	1.00
Gender		
Male	0.53 (0.47, 0.61)	0.91 (0.75, 1.11)
Female	1.00	1.00
Education		
High school	1.47 (1.28, 1.69)	1.43 (1.12, 1.83)
>High school, <4 year college	1.70 (1.51, 1.91)	2.29 (1.86, 2.82)
In 4-yr college or more	1.00	1.00
Snus use		
Ever tried snus	1.27 (1.11, 1.45)	2.31 (1.88, 2.86)
Never tried snus	1.00	1.00
E-cigarette use		
Ever tried	2.85 (2.55, 3.19)	1.98 (1.62, 2.41)
Never tried	1.00	1.00
Smoking status		
Current smoker	11.76 (10.12, 13.66)	10.98 (8.54, 14.13)
Former smoker	2.56 (2.11, 3.11)	2.46 (1.76, 3.46)
Nonsmoker	1.00	1.00

Adjusted for all variables in the model.

Bolded estimates were statistically significant ($p < 0.05$).

AIRR=adjusted incidence rate ratio. CI=confidence interval.