Briefs

Which Adults Do Underaged Youth Ask for Cigarettes?

Kurt M. Ribisl, PhD, Gregory J. Norman, PhD, Beth Howard-Pitney, PhD, and Kim Ammann Howard, PhD

ABSTRACT

Objectives. This study identified adults' demographic and smoking behavior characteristics that are related to being asked to provide tobacco to a minor.

Methods. Telephone interviews were conducted with 6352 California adults. Predictors included age, sex, household income, and smoking status.

Results. Only 10.1% of California adults had been asked to provide tobacco to a minor in the previous year. Fewer than 3% of individuals 55 years and older had been asked to provide tobacco, but among younger smokers 59.0% of 18- and 19-year-olds and 39.3% of 20- to 24-year-olds had been approached.

Conclusions. Interventions to reduce the social availability of tobacco are needed. (*Am J Public Health.* 1999; 89:1561–1564)

Most smokers obtain their first cigarette from a nonretail or social source, usually a friend.[1,2] Although earlier studies indicated that most underaged youth purchase their cigarettes at stores,[3] more recent studies have shown that many youth now obtain their cigarettes from social sources, such as friends, relatives, or strangers.[4,5] Aside from being a prominent and increasing source of tobacco among youth, widespread social availability of tobacco can undermine activities to reduce retail sources of tobacco.[6] There are no published studies documenting effective strategies to reduce social availability of tobacco, and there is a pressing need to develop interventions.[7,8] A Minnesota study focused on youth who provided tobacco to their peers,[8] but no parallel studies have been conducted with adults. The purpose of the present study was to identify the demographic and smoking behavior characteristics of adults that are related to being asked to provide tobacco to a minor.

Methods

A representative sample of 6985 adults 18 years and older completed random-digit dialing telephone interviews as part of the statewide Independent Evaluation of the California Tobacco Control, Prevention and Education Program.[9] Approximately 388 adults per county were drawn from 18 representative counties that were nested within 4 strata based on county population density. Demographic information on the 6352 respondents, with complete data on all study variables (90.9% of the respondents), is shown in Table 1.

The outcome variable was a yes–no response to the question "During the past 12 months, have you been asked by someone under age 18 to buy or give them cigarettes or chewing tobacco?" The 6 predictor variables were sex, smoking status, age category, racial–ethnic group, annual household income category, and population density stratum.

Chi-square tests of independence were conducted to examine the bivariate relationship between each predictor and the outcome variable. SPSS CHAID Version 6.0[10] was then used to detect mutually exclusive and exhaustive subgroups of the sample that differed markedly in regard to rate of being asked to provide tobacco to minors. This approach is closely related to regression tree or signal detection methods.[11,12] The analysis selected the "best" predictor of the outcome and divided the sample into subgroups based on that variable while merging nonsignificant categories. This process was repeated within each subgroup until no further predictors could significantly contribute to the analysis or until one of several stopping rules was reached. Because segmentation analysis is an exploratory procedure, we investigated the replicability of the resulting subgroup categories by conducting the analysis on two thirds of the sample and by examining the replication with the remaining one third of the sample.

At the time of the study, Kurt M. Ribisl was with the Stanford Center for Research in Disease Prevention, Stanford University School of Medicine, Palo Alto, Calif. He is now with the Department of Health Behavior and Health Education, University of North Carolina School of Public Health, Chapel Hill. Gregory J. Norman, Beth Howard-Pitney, and Kim Ammann Howard are with the Stanford Center for Research in Disease Prevention, Stanford University School of Medicine.

Requests for reprints should be sent to Kurt M. Ribisl, PhD, Department of Health Behavior and Health Education, University of North Carolina School of Public Health, CB #7400 Rosenau Hall, Chapel Hill, NC 27599 (e-mail: kribisl@sph.unc.edu).

This brief was accepted April 21, 1999.

Note. The analyses, interpretations, and conclusions presented in this brief are those of the authors, not the California Department of Health Services.

Results

Bivariate Analysis

Chi-square tests of independence between the outcome and each of the 6 predictors were statistically significant ($P<.001$), indicating that all of the predictors could potentially contribute to the segmentation analysis (see Table 1).

Segmentation Analysis

Figure 1 presents the results of the CHAID segmentation analysis of the two thirds sample. The top bar in Figure 1 indicates that, overall, 10.1% of adults had been asked by a minor to provide tobacco in the previous year. Age, smoking status, sex, and income all entered into the analysis, resulting in 11 subgroups. Age category was the predictor at the first level of the analysis, indicating that it had the strongest relationship with the outcome. At the second level of the analysis, 4 of the 5 age categories were split into smoking and nonsmoking subgroups. The first solid bar at the top of Figure 1 represents the subgroup of smokers aged 18 and 19 years, the group that had the highest rate of being asked to provide tobacco. Of these 39 individuals, who represented 0.94% of the total sample, 59.0% reported that they were asked to provide tobacco to a minor.

The bar at the bottom of Figure 1 indicates that respondents 55 years and older had the lowest rate of being asked to provide tobacco (2.6%). Subgroups consisting of smokers were between 1.5 and 6.6 times more likely to be asked to provide tobacco than were the nonsmoking subgroups within each age category. Two of the age categories were further divided by a third predictor. The subgroup of nonsmokers aged 20 to 24 years was divided into male and female subgroups, whereas the subgroup of smokers aged 35 to 54 years was divided into 2 income categories (less than $20 000 and $20 000 or more).

Replication Analysis

The one third holdout sample was categorized into the same 11 subgroup segments derived from the CHAID analysis of the two thirds sample. The differences between the 2 samples were less than 6% in all but 1 comparison, indicating excellent replication.

TABLE 1—Demographic Characteristics of the Sample and Rate's of Being Asked to Provide Tobacco to a Minor in the Previous Year: Independent Evaluation of the California Tobacco Control, Prevention and Education Program, 1996

Predictor	Sample (n = 6352), %	Asked to Provide Tobacco, %[a]
Sex		
Male	42.6	10.9
Female	57.4	8.7
Smoking status		
Smoker	21.2	20.5
Nonsmoker	78.8	6.7
Age, y		
18–19	3.5	42.5
20–24	7.8	23.5
25–34	22.7	11.4
35–54	43.3	7.4
≥55	22.6	2.4
Race–Ethnicity		
American Indian	2.2	16.3
African American	4.4	13.1
Hispanic	10.3	13.0
White	76.7	9.0
Asian–Pacific Islander	4.8	6.6
Other	1.5	9.2
Household income, $		
<10 000	8.1	16.6
10 000–14 999	8.7	15.9
15 000–19 999	8.0	14.9
20 000–24 999	8.0	9.2
25 000–34 999	14.1	9.7
35 000–49 999	19.0	7.9
50 000–74 999	17.1	7.3
75 000 or more	17.0	5.3
Stratum		
Media market (most urban)	27.5	8.5
High density	27.8	8.6
Medium density	22.5	11.7
Low density (most rural)	22.2	10.3

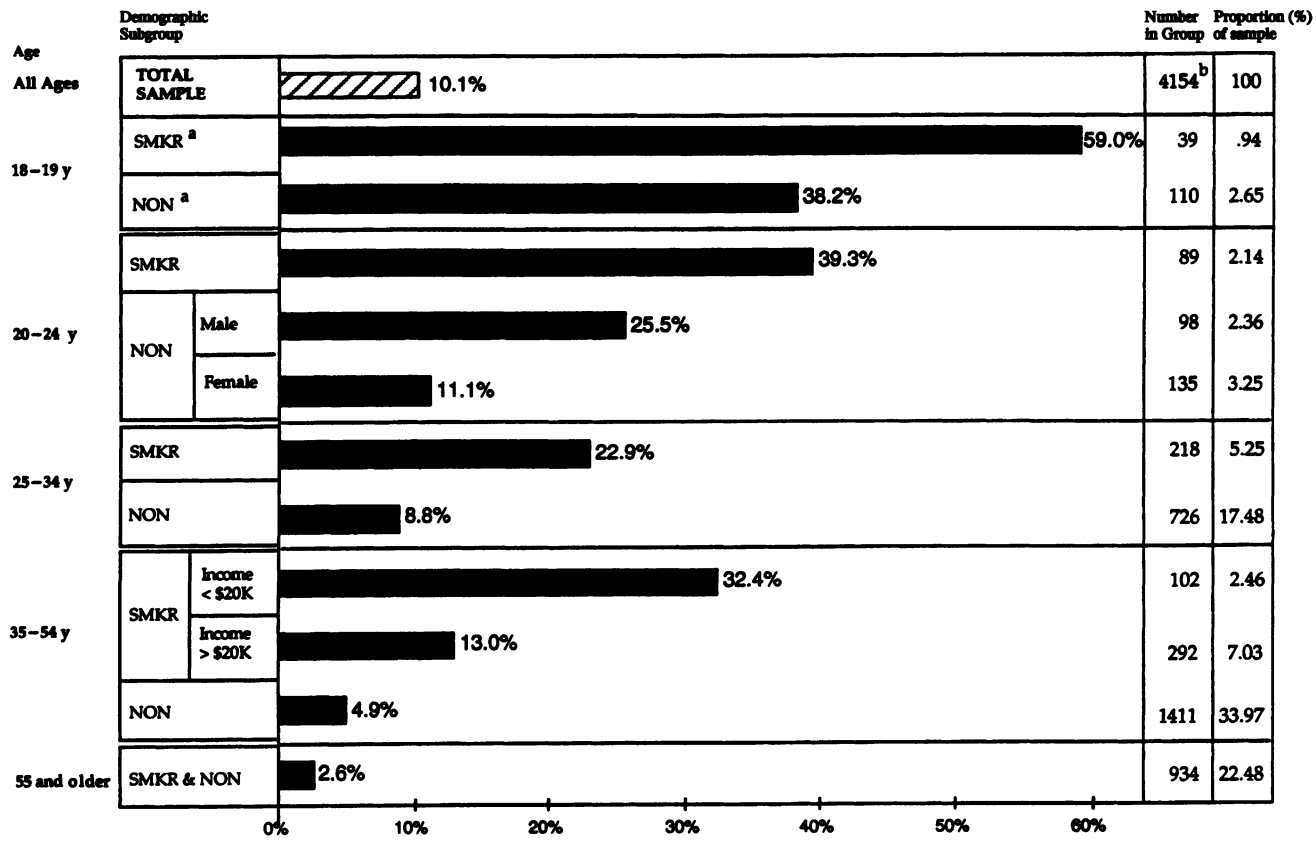
[a]All χ^2 tests of independence between the predictors and the outcome were statistically significant ($P<0.001$).

Discussion

The goal of this study was to identify the profile of adults who are at highest risk of being asked to provide tobacco to minors. Approximately 10% of the California adults in this study had been asked to provide tobacco to a minor at least once in the previous year. However, the rate was far greater among certain demographic subgroups. The most important predictors, in descending order, were age, smoking status, and sex or income. The 3 subgroups with the highest rates of being asked to provide tobacco to minors were smokers aged 18 and 19 years, smokers aged 20 to 24 years, and nonsmokers aged 18 and 19 years. The rate was approximately 4 to 6 times higher in these subgroups than it was in the overall sample. The rate for nonsmokers 25 years and older was below the overall 10% rate, and rates were especially low for adults 55 years and older.

In most communities, there are far more social than retail providers of tobacco. For example, in a small community of 25 000 adults, there would be an estimated 30 to 40 tobacco retailers and approximately 2525 (10.1% of 25 000) adults who are asked by young people to provide tobacco in a given year. Even if only a small fraction of these adults actually provides tobacco, a community has far more social than retail sources. Designing effective interventions to reduce social availability is a significant challenge. Social source providers are more diffuse and prevalent than retail sources of tobacco, and adult providers often have a personal relationship with the young person. Nevertheless, the results of this study provide a starting place for future efforts.

One of the limitations of this study is that the sample was restricted to adults 18 years and older. A study comparing the rates at which adults and youth are asked to provide tobacco to minors would be a valuable contribution. Also, this study did not account for adult smokers who might act as unwitting social source providers by leaving their cigarettes accessible to minors. Finally, this study



[a]SMKR = current smokers; NON = nonsmokers and former smokers.
[b]This analysis was based on a randomly selected group representing two thirds of the total sample; one third of the sample was held back for replication purposes.

FIGURE 1—Rates at which California adults had been asked to provide tobacco to a minor in the previous year, by demographic subgroup: Independent Evaluation of the California Tobacco Control, Prevention and Education Program, 1996.

examined the proportion of adults who were asked to provide tobacco, but we were unable to examine whether they actually did so. The rate of being asked to provide tobacco was high among adult smokers aged 18 to 24 years (3% of the population); however, a greater number of adults 24 years and older had been approached by minors, because this older group is more prevalent in the population.

It is important for future studies to ask adults whether they provided the tobacco to the minor and how often they did so. Such knowledge can be used in estimating the amount of tobacco provided by different subgroups, and this information can be used for intervention planning. A strength of the present study is that it was based on a large representative sample, which allowed us to conduct a replication analysis that demonstrated the stability and generalizability of the findings to other similar samples.

Most states are making progress in reducing the rate of illegal tobacco sales to minors, but they may find that youth access still remains. As fewer minors are able to purchase tobacco for themselves, states need to address the willingness of friends, family members, and strangers to provide it to them. Effective intervention strategies are sorely needed to address this burgeoning problem. The findings from this study will be helpful in targeting much-needed interventions aimed at reducing the social availability of tobacco to minors. □

Contributors

K. M. Ribisl planned the study, supervised the data analysis, and wrote the paper. G. J. Norman analyzed the data and contributed to the writing of the paper. B. Howard-Pitney and K. A. Howard contributed to the writing of the paper.

Acknowledgments

Data were collected as part of the Independent Evaluation of the California Tobacco Control, Prevention and Education Program. This project was made possible by funds from the Tobacco Tax Health Protection Act of 1988–Proposition 99 (under grant 95-222998 from the California Department of Health Services, Tobacco Control Section).

The Independent Evaluation Consortium consists of a team of researchers from the Gallup Organization, Stanford University, and the University of Southern California. The institutional review board at the Gallup Organization (Princeton, NJ) approved this research project. Participants gave their informed consent.

We would like to acknowledge the assistance of Sonia Halvorson in the preparation of Figure 1.

References

1. DiFranza JR, Eddy JJ, Brown LF, Ryan JL, Bogojavlensky A. Tobacco acquisition and cig-

arette brand selection among youth. *Tob Control*. 1994;3:334–338.
2. Greenland KJ, Johnson CC, Webber LS, Berenson GS. Cigarette smoking attitudes and first use among third- through sixth-grade students: the Bogalusa Heart Study. *Am J Public Health*. 1997;87:1345–1348.
3. *Preventing Tobacco Use Among Young People: A Report of the Surgeon General*. Washington, DC: US Dept of Health and Human Services; 1994.
4. Forster JL, Wolfson M, Murray DM, Wagenaar AC, Claxton AJ. Perceived and measured availability of tobacco to youths in 14 Minnesota communities: the TPOP study. *Am J Prev Med*. 1997;13:167–174.
5. Ribisl KM, Howard KA, Howard-Pitney B, Norman G. *Youth Access to Tobacco Products. Final Report of the Independent Evaluation of the California Tobacco Control, Prevention and Education Program: Wave 2 Data, 1996–1998*. Rockville, Md: Gallup Organization; 1999.
6. Rigotti NA, DiFranza JR, Chang Y, Tisdale T, Kemp B, Singer DE. The effect of enforcing tobacco-sales laws on adolescents' access to tobacco and smoking behavior. *N Engl J Med*. 1997;337:1044–1051.
7. Forster JL, Wolfson M. Youth access to tobacco: policies and politics. *Annu Rev Public Health*. 1998;19:203–235.
8. Wolfson M, Forster JL, Claxton AJ, Murray DM. Adolescent smokers' provision of tobacco to other adolescents. *Am J Public Health*. 1997;87:649–651.
9. Independent Evaluation Consortium. *Final Report of the Independent Evaluation of the California Tobacco Control, Prevention and Education Program: Wave 1 Data, 1996–1997*. Rockville, Md: Gallup Organization; 1998.
10. Magidson J. *SPSS for Windows CHAID, Release 6.0*. Chicago, IL: Statistical Innovations Inc; 1993.
11. King AC, Kiernan M, Oman RF, Kraemer HC, Hull M, Ahn D. Can we identify who will adhere to long-term physical activity? Signal detection methodology as a potential aid to clinical decision making. *Health Psychol*. 1997;16:380–389.
12. Kraemer HC. *Evaluating Medical Tests: Objective and Quantitative Guidelines*. Newbury Park, Calif: Sage Publications; 1992.

Retail Trade Incentives: How Tobacco Industry Practices Compare With Those of Other Industries

Ellen C. Feighery, MS, RN, Kurt M. Ribisl, PhD, Dale D. Achabal, PhD, and Tyzoon Tyebjee, PhD

ABSTRACT

Objectives. This study compared the incentive payments for premium shelf space and discounts on volume purchases paid to retailers by 5 types of companies.

Methods. Merchants were interviewed at 108 randomly selected small retail outlets that sell tobacco in Santa Clara County, California.

Results. Significantly more retailers reported receiving slotting/display allowances for tobacco (62.4%) than for any other product type. An average store participating in a retailer incentive program received approximately $3157 annually from all sampled product types, of which approximately $2462 (78%) came from tobacco companies.

Conclusions. Future research should assess the impact of tobacco industry incentive programs on the in-store marketing and sales practices of retailers. (*Am J Public Health*. 1999; 89:1564–1566)

The tobacco industry has shifted away from traditional forms of advertising toward focused retailer incentive programs. In 1996, traditional venues such as magazines, newspapers, and outdoor advertisements consumed only 11% of the tobacco industry's $5.1 billion advertising budget, while 47% of the budget ($2.4 billion) went into retailer incentive programs that included promotional allowances and point-of-sale marketing programs.[1]

Many industries, including tobacco companies, use dual strategies to maximize total sales by *pulling* or encouraging consumers to buy a product while using retailer strategies to *push* or sell a product through a distribution channel.[2] Consumer-based pull strategies include advertising, coupons, 2-for-1 sales, and gifts with purchase. Retailer-based push strategies include payments for prime shelf space, volume discounts, and in-store displays that are designed to motivate retailers to create in-store merchandising environments that maximize sales.[2]

Few systematic data are available on retailer incentive programs.[3] Two studies of tobacco advertising in stores revealed that about 50% to 60% received monetary incentives from tobacco companies to display advertisements, but neither the types nor the amounts of monetary incentives were identified.[4,5] We found no other studies that examined this issue. Given the magnitude of tobacco marketing expenditures in retail outlets, this study was designed to ascertain the types and amounts of incentives received by local tobacco retailers compared with those received for other commonly sold products.

Methods

Design

A cross-sectional survey was designed to investigate the types of retailer incentive programs offered in 5 product categories to

Ellen C. Feighery is with, and at the time of the study Kurt M. Ribisl was with, the Stanford Center for Research in Disease Prevention, Stanford University School of Medicine, Palo Alto, Calif. Dale D. Achabal and Tyzoon Tyebjee are with the Leavey School of Business, Santa Clara University, Santa Clara, Calif.

Requests for reprints should be sent to Ellen C. Feighery, MS, RN, Stanford Center for Research in Disease Prevention, Stanford University School of Medicine, 1000 Welch Rd, Palo Alto, CA 94304 (e-mail: feighery@scrdp.stanford.edu).

This brief was accepted April 17, 1999.