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Smokers' Vs. Non-smokers' Attitudes toward Tobacco Usage

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Abstract - The purpose of the study was to collect attitudinal and behavioral data from a sample of college students from a Southern state university regarding tobacco usage. A non-probability sample of 508 college students was collected by handing out surveys in classes and in campus buildings. The questionnaire was designed by the students and the authors and included half of Pechmann and Shih's (1999) smoking perceptions scale items. Users made up 36.6% of the sample. The average length of time reported using tobacco products was five years. Three out of Pechmann and Shih's four factors were reproduced in this study for users; however, factor analysis failed to load properly for non-users. Limitations included the sample being drawn using a non-probability method and based on students at one university. Using only half of Pechmann and Shih's scale items is also a limitation. Users appear to not be affected by anti-smoking campaign apply Pechmann and Shih's scale items to measuring the perceptions of tobacco users and non-users in a college setting whereas non-users have apparently been influenced by such campaigns.

Keywords - Social marketing, Tobacco usage, College students, Attitudes, Public Health

Relevance to Marketing Educators, Researchers and/or Practitioners - Two groups, males and users in general, were identified as having higher self-perceptions than expected. Social marketing campaigns designed to restructure these perceptions may be appropriate to use instead of pure anti-use campaigns. Applying Pechmann and Shih's scale items to measuring the perceptions of tobacco users and non-users in a college setting may yield fruitful research.

Introduction

In 2008 a southern regional university's counseling center and student services office received a grant from the Louisiana's Tobacco-Free College Initiative program to establish a coalition for substance use culture change. As

part of that grant, a marketing professor's Promotional Strategy students prepared competitive promotional campaigns based on a survey of students' attitudes toward tobacco usage. A portion of the data collected was analyzed for use by the students, given the tight timeline. Analyses of the entire data set were then conducted by the authors and the findings are reported in this paper.

Literature Review

Tobacco usage by children and young adults has been studied over the past 30 years by researchers and practitioners in the public health field and in the marketing field in the past 20 years. The latter studies have focused primarily on the impact of advertising on changing behavior patterns, primarily those of pre-college adolescents (see the work by Pechmann and her collaborators, including Pechmann and Ratneshwar, 1994; Pechmann and Shih, 1999; Pechmann and Reibling, 2000; Pechmann, 2002; and Zhao and Pechmann, 2007; also see Gallopel-Morvan et al., 2011). Most of the research has focused on cigarette smoking, though other types of tobacco usage (cigars, chewing, and smokeless) have come "under the microscope" within the last 10 to 15 years or so (see Goldberg, 2008; Ringold, 2008; and Taylor and Capella, 2008).

Adolescent smoking increased tremendously in the early and mid 1990s, but the trend has continued to decline since then, with 20% of 12th graders in 2009 being smokers. Perceived risk, social disapproval (resulting from antismoking ads in part), and price increases have contributed to this decline. Smokeless tobacco usage had been in decline into the mid-2000s, but increased in 2009 (Johnston et al., 2010, p. 7).

Self-reported smoking among college-aged students (primarily 18 to 24) increased in the late 1990s to approximately 28% (Wechsler et al., 1998, as cited in Khallad, 2010, p. 926), peaked at 30-31% in 1999, then fell off to a range of 19% to 22%, according to several sources (see Dube et al., 2010, Table 1; Green et al., 2007; Wolfson et al., 2009, p. 977). "Smokeless tobacco use was highest among persons aged 18-24 years and those with a high school education or less" (McClave et al., 2010). While tobacco usage typically begins before young adulthood, some research has shown that college-aged students are starting to use tobacco (primarily cigarettes) and increase their consumption of tobacco, leading to addiction (Green et al., 2007, p. 1427).

Other tobacco usage issues that have been explored recently include social smoking, exposure to secondhand smoke, smoking cessation efforts, and the habits of young adults who do not attend college (Green et al., 2007). College student "smoking is strongly associated with alcohol use and attending social events" (Moran et al., 2004, p. 1028). Social smokers, who tend to smoke only when socializing with others, tended to be binge drinkers and had fewer intentions of quitting (Moran et al., 2004, pp. 1030, 1032). Regarding exposure to secondhand smoke, significant differences were discovered for various locations (in a car, at home or in a room, and in a bar or restaurant) by various

demographic factors including age, race, gender, fraternity membership, and parental education, as well as by behavior (being a smoker and/or a binge drinker) (Wolfson et al., 2009, pp. 979-81). Smoking cessation efforts have been studied by Halperin et al. (2006), Obermayer et al. (2004) and Wechsler et al. (2001), among others.

Purpose

The purpose of the study was to collect attitudinal and behavioral data on a sample of college students from a Southern state university regarding tobacco usage. The sample was designed to include both smokers and non-smokers.

Method

The Promotional Strategy students obtained permission from building coordinators, university officials, and professors to set up tables in various campus buildings as well as distribute copies of the questionnaire in various classes around the university. The students also approached other students they knew in and around the metropolitan area (e.g., in restaurants, dorms, churches). They asked students to voluntarily participate in completing the survey. The research project was approved by the university's Institutional Review Board before data collection began in September 2008. Each of the 27 students was asked to collect 20 surveys, yielding an initial target sample size of 540 currently-enrolled college students.

A three-page questionnaire was designed by the professor with input from the students. A qualifying question was used to identify currently-enrolled students. The first question was used to identify smokers and non-smokers and thus direct the participant to the appropriate set of questions. Smokers were asked to indicate which tobacco products were used (cigarettes, cigars, pipe, hookahs, and/or smokeless/chewing). They were then asked a series of questions regarding smoking behavior, followed by four Likert-type attitudinal rating scale questions. Non-smokers were asked a series of behavioral and attitudinal questions. Demographic questions included gender, age, major, class standing, athletics involvement, socializing, and ethnicity.

Both groups (smokers and non-smokers) were asked about their beliefs regarding the perception of smoking, based on a series of scale items (adjective pairs) pulled together from various sources and tested with factor analyses by Pechmann and Shih (1999, p. 5). The 22 items were initially found in the Marketing Scales Handbook (Bruner et al., 2005, pp. 581-84). The professor initially included all 22 items in the rough draft of the survey for each group; however, the class expressed concern about the length of the survey. Reluctantly, half of the items were selected judgmentally by the professor. Smokers were asked to respond to the 11 items that completed the statement, "Using tobacco products makes me feel:," using the nine-point scale (1 to 9,

where 9 = most favorable) recommended by Pechmann and Shih (1999, p. 5). Non-smokers were asked to respond to the 11 items that completed the statement, “How does a college student who used tobacco products look to you?” using the same nine-point scale.

Data collection was to be completed by the end of September 2008; however, some students procrastinated or had problems, so data collection was completed by the end of October. A goal of 540 completed surveys was the target; however, 508 completed questionnaires were actually turned in and form the data set for the findings reported in this paper.

Findings

A profile of the respondents is provided in Table 1. Over 60% of the respondents were non-smokers. There was a nice split in terms of gender with roughly 53% of the students being women. In terms of age, the average student was 21.62 years old, with both the mode and median being 21. A wide range of majors was reported, with most of them being business-related (accounting, finance, marketing, etc.). Given the wide range, a second demographic variable, major by college, was created. Almost half the respondents were from the college of business (45.1%) followed by the college of education (17.4%). Three in ten students were seniors and another 24.3% were juniors. Seven in ten respondents were not involved in athletics. Respondents were asked to indicate how often they went out to eat/drink/dance/etc.; over a third said “one or two nights a week” and 29.4% stated “once every two weeks.” Over three fourths of the respondents were Caucasian while almost 12% were African-American.

Table 1: Respondent Profile

<i>Characteristic</i>	<i>Mode (n)</i>	<i>Mode (%)</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
User of tobacco: No	322	63.4	508	n/a	n/a
Gender: Female	264	52.8	500	n/a	n/a
Age: 21	93	18.6	499	21.62	4.162
Major: General Business	65	13.1	495	n/a	n/a
College: Business	223	45.1	495	n/a	n/a
Class standing: Senior	154	30.9	498	n/a	n/a
Athletics involvement: No	347	70.1	495	n/a	n/a
Socializing: 1-2 nights/week	172	34.7	496	n/a	n/a
Ethnicity: Caucasian	384	77.3	497	n/a	n/a

Tobacco users’ responses to the questions that were asked of them are provided in Table 2. A total of 186 students were users of tobacco products;

however, there were item omissions for the questions. Respondents reported smoking cigarettes and/or using smokeless/chewing tobacco the most. The most frequently self-reported cigarette usage was less than one pack a day, whereas smokeless users most often said they used three or more pinches a day. Students who responded said they had been using tobacco products an average of approximately five years; the median response was four years and the mode was two years. Almost four out of five users started before coming to college, and over 80% reported that at least one relative smokes. Over half (roughly 56%) had never tried to quit; of those who had, most had tried to quit one time in 24 hours (mean = four times, median = two). Almost three-fourths said they'd date a non-smoker.

Table 2: Overview of Tobacco Users

<i>Question</i>	<i>Freq.</i>	<i>%</i>	<i>N</i>	<i>Mean</i>	<i>S.D.</i>
Cigarettes – Use	145	77.5	187	n/a	n/a
How often: < a pack a day	97	54.5	178	n/a	n/a
Cigars – Use	28	15.1	185	n/a	n/a
How often: one a day	16	10.7	149	n/a	n/a
Pipe – Use	13	7.0	186	n/a	n/a
How often: > two bowls a day	6	4.1	147	n/a	n/a
Hookahs – Use	15	8.0	187	n/a	n/a
Smokeless/Chewing – Use	59	31.6	187	n/a	n/a
How often: ≥ three pinches a day	35	22.6	155	n/a	n/a
How long a user: 24 months (mode)	19	16.1	118	60.45	55.71
Started before college: Yes	141	78.3	180	n/a	n/a
Relatives smoke: Yes	154	82.4	187	n/a	n/a
Tried to quit: No	102	55.7	183	n/a	n/a
How many times: Once in 24 hours (mode)	19	24.4	78	4.038	11.63
Date a non-smoker: Yes	135	73.8	183	n/a	n/a
More likely to use in drinking setting: Strongly agree	125	66.8	187	4.41	1.025
Am aware of health risks in using: Strongly agree	131	70.1	187	4.66	0.557
More likely to use when stressed: Strongly agree	106	56.7	187	4.33	0.976
If health risks were high enough, I'd quit: Neither	67	35.8	187	3.44	1.127

Most of the tobacco users strongly agreed with the first three statements regarding increased usage in a drinking environment (66.8%, mean = 4.41), being aware of the health risks (70.1%, mean = 4.66), and increased usage in stressful situations (56.7%, mean = 4.33). More uncertainty was expressed with regard to the last statement, of quitting if the health risks were high enough (35.8% “neither agree nor disagree” vs. 25.1% “agree,” mean = 3.44).

Turning to the 11 adjective pairs drawn from Pechmann and Shih (1999), means and standard deviations are provided in Table 3. The means ranged from 4.16 (Unhealthy-Healthy) to 5.93 (Controlled-Own Person). The modal response for each item was “5” – right in the middle of each pair.

Table 3: Users’ Responses to Pechmann & Shih’s Items

<i>Adjective Pair¹</i>	<i>Mean</i>	<i>S.D.</i>	<i>N</i>
Insecure-Confident	5.44	1.966	179
Controlled by others-My own person	5.93	2.308	179
Worried-Contented	5.84	2.178	178
Disliked-Well-liked	5.16	1.922	176
Not desirable to date-Desirable to date	4.69	2.075	178
Unattractive-Attractive	4.76	2.171	178
Stupid-Intelligent	4.79	2.147	178
Poor-Rich	4.84	1.809	179
Unhealthy-Healthy	4.16	2.251	179
Unfit-Fit	4.61	2.201	179
Unclean-Clean	4.66	2.452	179

¹Nine-point rating scale used, where 1 = negative adjective (e.g., insecure) and 9 = positive adjective (e.g., confident).

Non-users were first asked if they had ever used tobacco products in the past. Fifty-seven percent (183/321) self-reported that they had never used tobacco. They were then given four possible reasons as to why they don’t currently use tobacco, plus a blank line for listing other reasons. The most often checked reason was “concerned about health risks” (242/320), followed by “bad habit” (233/319), “never cared for the taste” (166/319), and “costs too much” (129/319). “Other reasons” was checked by 71 students; responses varied widely and were not easily categorized.

Almost two-thirds (211/321, 65.7%) reported that they had never felt pressured by friends to use tobacco products. Over two-thirds (220/320, 68.8%) said that they would never date a smoker, whereas 71 (22.2%) said it didn’t matter. Ninety-three non-users (29%, n = 321) expressed some concern about exposure to second-hand smoke while entering campus buildings, while 75 students (23.4%) were very concerned about being exposed. Turning to the 11 adjective pairs drawn from Pechmann and Shih (1999), means and standard deviations are provided in Table 4. The means ranged from 2.93 (Unhealthy-Healthy) to 4.89 (Disliked-Well-liked). The modal response was “5” for seven

items, “1” for three items (Not desirable to date, Unattractive, and Unhealthy), and bimodal (“1” and “5”) for one item (Unclean-Clean).

Table 4: Non-users’ Responses to Pechmann & Shih’s Items

<i>Adjective Pair¹</i>	<i>Mean</i>	<i>S.D.</i>	<i>N</i>
Insecure-Confident	4.17	1.906	300
Controlled by others-My own person	4.69	2.109	300
Worried-Contented	4.19	2.099	300
Disliked-Well-liked	4.89	1.607	299
Not desirable to date-Desirable to date	3.14	2.107	300
Unattractive-Attractive	3.20	2.090	299
Stupid-Intelligent	3.79	2.062	301
Poor-Rich	4.70	1.568	301
Unhealthy-Healthy	2.93	1.991	299
Unfit-Fit	3.58	1.991	300
Unclean-Clean	3.44	2.083	301

¹Nine-point rating scale used, where 1 = negative adjective (e.g., insecure) and 9 = positive adjective (e.g., confident).

For purposes of further analysis, the demographic variable age was recoded into categories once past the response age of 25 (i.e., ages 26 to 29 were combined as were ages 30 to 53). Cross tabulations and chi-square analysis were used to first determine if there were any significant relationships among the demographic variables themselves. Only significant differences ($p \leq .10$) where the cell size problem was 20% or less are reported. T-tests and nonparametric tests were also conducted.

Users of tobacco products tended to be male students ($\chi^2 = 13.764$, $df = 1$, $p = .000$), of Hispanic or Native American ethnicity (versus Asian- and African-Americans, $\chi^2 = 23.849$, $df = 5$, $p = .000$, cell size problem = 16.7%), and between the ages of 19 and 29 ($\chi^2 = 22.895$, $df = 9$, $p = .006$). Users also tended not to be involved in athletics ($\chi^2 = 15.635$, $df = 1$, $p = .000$), and went out to eat/drink/dance nightly ($\chi^2 = 18.803$, $df = 4$, $p = .001$, cell size problem = 20%).

Male respondents tended to be junior or graduate students whereas females tended to be freshmen ($\chi^2 = 14.958$, $df = 4$, $p = .005$) and to have College of Engineering-related majors as compared to Education and Nursing-related majors for females ($\chi^2 = 28.897$, $df = 7$, $p = .000$, cell size problem = 6.3%). Males tended to go out at least once a week versus once every two weeks for females ($\chi^2 = 20.712$, $df = 4$, $p = .000$, cell size problem = 20%).

Analyses were then conducted on the nominally-based questions asked of users and non-users by demographics. While users overall tended to be male as noted above, females tended to use cigarettes ($\chi^2 = 26.16$, $df = 1$, $p = .000$) whereas males tended to use smokeless or chewing tobacco ($\chi^2 = 49.133$, $df = 1$, $p = .000$). Female students tended to use less than a pack a day of cigarettes while

those men who did tended to smoke a pack a day or more ($\chi^2 = 30.368$, $df = 3$, $p = .000$). According to the T-Test, males had been users significantly longer than females had been (Means: 66.82 months vs. 47.88 months; $t = -2.024$, $df = 112$, $p = .045$). Females significantly more agreed that they were aware of the health risks than did males (Means: 4.79 vs. 4.59; $t = 2.698$, $df = 179.113$, $p = .008$, equal variances not assumed). Students 23 and older have been tobacco users for six years or more, while those who are younger (with the exception of 21-year-olds) have been users for less than four years (Kruskal-Wallis $\chi^2 = 55.995$, $df = 9$, $p = .000$).

Turning to non-users, males reported using tobacco products in the past ($\chi^2 = 3.998$, $df = 1$, $p = .046$). Regarding the reasons for non-use, women tended to check "concerned about health risks" ($\chi^2 = 3.115$, $df = 1$, $p = .078$). Male non-users reported having felt pressured by friends to use tobacco ($\chi^2 = 4.85$, $df = 1$, $p = .028$). Using the Mann-Whitney U Test, female non-users were more concerned about exposure to secondhand smoke than were male non-users ($Z = -1.751$, $p = .08$, $n = 317$).

Pechmann and Shih (1999, p. 5) used a principle components factor analysis on the 22 belief items for both groups and identified four factors: stature, vitality, popularity, and poise (with six, six, six, and four items respectively; reliabilities between .91 and .97). Although the 22 items had been reduced to 11 for this study, a factor analysis was run on them for users and non-users.

Looking at the users group first, initially two factors were identified, but the rotated matrix loadings were not very clean for interpretation purposes. The authors decided to force three factors to see how well they would load. Three items (Poor, Stupid, Disliked) loaded on more than one factor and were dropped. For the final three-factor solution, the KMO test was .862 and Bartlett's Test was significant ($p = .000$), indicating that factor analysis was appropriate to use (Pallant, 2005, p. 174). Numerous correlations of .30 or higher were noted in the correlation matrix. The three factors had eigenvalues of 4.982, 1.242, and .502, and explained 84.079% of the total variance. The three factors were very similar to three of the four factors identified by Pechmann and Shih (1999), so the same names were used: vitality (three items), poise (three items), and popularity (two items). While there were cross-loadings of three items (See Table 5), each item loaded strongly on one factor and weakly on others, so each was not dropped. Reliability tests were then run on the factors. Factor 1: Vitality (healthy, clean, fit) had a Cronbach's alpha of .901, Factor 2: Poise (own person, contented, confident) had an alpha of .848, and Factor 3: Popularity (desirable, attractive) had an alpha of .913. All three factors had reliabilities exceeding .70, the minimum required for a good measure (Pallant, 2005, p. 92).

Table 5: Factor Loadings for Users' Self-Perceptions

<i>Varimax Rotation</i>	<i>Factor 1</i>	<i>Factor 2</i>	<i>Factor 3</i>
<i>Adjective Pair</i>	<i>Vitality</i>	<i>Poise</i>	<i>Popularity</i>
Unhealthy-Healthy	.843		.368
Unclean-Clean	.839		
Unfit-Fit	.837		
Controlled by others-My own person		.898	
Worried-Contented		.856	
Insecure-Confident		.691	.383
Not desirable to date-Desirable to date	.396	.300	.820
Unattractive-Attractive	.454	.312	.771

Looking at the 11 items with regard to non-users' perceptions/beliefs about users, several attempts at factor analysis were made with little success. Forcing three variables resulted in the retention of only six items and problems with reliability statistics. Letting the factor analysis run without any forcing resulted in two factors and 10 items, with Cronbach's Alphas > .79. However, interpretation of the two factors was not easily done. Factor 1 was a mix of intelligence, desirability (popularity) and vitality, while factor 2 was a mix of poise and popularity.

Returning to the three factors identified among users, three variables were computed from the scale items and evaluated for significance among the demographic characteristics using nonparametric statistics. Male users were more likely to identify favorably with Popularity than were female users (Mann-Whitney, $z = -1.986$, $p = .047$). Users who were involved in athletics were more likely to identify with Vitality ($z = -2.404$, $p = .016$) and Popularity ($z = -1.875$, $p = .061$). Sophomore users were more likely to identify with Poise than were seniors (Kruskal-Wallis $\chi^2 = 18.29$, $df = 4$, $p = .001$). Students who went out nightly to eat or drink identified more with Poise ($\chi^2 = 10.74$, $df = 3$, $p = .013$) and Popularity ($\chi^2 = 8.816$, $df = 3$, $p = .032$) than did those who only went out once every two weeks. Nursing and General Studies majors identified more with Poise versus Business majors ($\chi^2 = 14.749$, $df = 7$, $p = .039$).

Limitations

There are several limitations involved in this study to point out. First, though the sample size was over 500, it was still drawn from a non-probability sample of students at one university. As a result, Business majors are overrepresented and other fields are underrepresented in the sample, which is another limitation. The sample was drawn from one university in one region of the U.S.A. and thus affects the generalizability of the findings. Another limitation is the fact that only half of Pechmann and Shih's (1999) scale items were used in the survey. This especially created problems with the factor analysis of the items for non-users of tobacco products

Discussion

Users admitted to increased tobacco usage while drinking or encountering stressful situations (like studying for exams), despite being aware of the health risks. Self-perceptions were generally neutral regarding the Pechmann and Shih (1999) scale adjective pairs. Being aware of risks but reluctant to change seems to be supported by Hastings and Angus' (2011) contention that industry social marketing/responsibility campaigns are not very effective in reducing usage of tobacco products (nor do government or third-party messages appear to be effective). On the other hand, anti-tobacco messages appear to have been more effective regardless of source (industry, government or third-party) on non-users, given their perceptions of users (see Table 4) and concerns about health risks and secondhand smoke. As a reviewer noted, how much of an ethical mandate do social marketers have to stand up and make changes.

Two groups appear to be candidates for social marketing promotional campaigns that involve restructuring perceptions instead of sending pure anti-usage messages. The first group consists of males, who tended to be the heavy and longer-term users of tobacco products, especially chewing tobacco, and who see themselves as being popular and attractive. Messages somehow need to counter this popularity perception, emphasizing that one would be more popular (and/or attractive) if one were to quit using tobacco products. The second group consists of users in general, who have rarely tried to quit using, started using in high school or earlier, and were influenced by relatives who smoked. They tended to eat out and thus drink more often while viewing themselves as confident and popular. They tended not to be involved in athletics, yet those users who were involved in athletics perceived themselves to be healthy (vitality), thinking, perhaps, that exercising offset tobacco usage effects. Again, campaigns should focus on breaking and restructuring these perceptions to emphasize that by drinking in moderation and not using tobacco, one truly is more confident and popular, and that by quitting tobacco as athletes really makes one healthier.

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