

At Face Value: A Survey of Self-Image and Health Behavior



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EXECUTIVE SUMMARY AND FINDINGS

Reports state that cigarette smokers generally experience a pattern of facial wrinkles similar to that of nonsmokers, however, the wrinkles of smokers are expressed prematurely and more severely than those of nonsmokers (1,2). This study used a digital side-by-side progressive comparison of cigarette-related premature facial wrinkling versus typical non-smoker facial wrinkling over a period of several decades (teenage, 20, 30, 40, up to 50 years).

In this study, adolescents in 3 pairs of 8th and 10th grade classes received either the intervention treatment, where students viewed images of themselves being aged under the 'smoking' condition, or a comparison treatment where students viewed images of themselves being aged under the 'obesity' condition. Students completed surveys before being aged and another approximately 6 weeks afterwards. Outcomes assessed were changes in knowledge, attitudes, and beliefs about smoking as well as changes in tobacco use indicators between the two groups overall and by grade level.

The findings presented in this report indicate promise for the intervention. Some highlights include:

- Over 90% of the students are concerned about their appearance.
- Virtually all of the students remembered the demonstration (96%).
- Three out of four reported that it said something important to them, and over 70% reported talking to someone about it afterwards.
- Progression to smoking was lower in the tobacco group (2%) compared to the control group (5%), although intermediate measures of willingness to smoke were comparable between the two groups.

Future directions include ongoing evaluation of this intervention, and the data generated from this smaller study will be used as the basis for a large-scale intervention grant proposal.

BACKGROUND AND METHODS

This project provides a unique opportunity to evaluate a potential intervention for tobacco use cessation and prevention among adolescents. Anti-smoking and cessation campaigns that have focused on the deleterious health effects of smoking have generally been found to be ineffective in decreasing initiation and/or increasing cessation among young adolescents (3). Tobacco programs that emphasize diseases attributable to smoking do not readily resonate with children, possibly because the consequences are too far in the future to have an influence on present behavior (4). Programs that emphasize social influences and environment appear to be more effective in tobacco prevention among young students (3). The proposed study will determine whether cigarette-related wrinkling is perceived as a detrimental social consequence of smoking, and, if so, if it has potential as a component of tobacco prevention programs that emphasize social influences rather than health effects.

The survey population included all 8th and 10th grade students enrolled in six suburban schools near Buffalo, NY that agreed to participate. By surveying 8th and 10th grade students, we were able to gain information about both students that were less likely to have initiated smoking (8th graders) and those that were more likely to have already initiated (10th graders).

THE SURVEY

The survey, which was administered to students at the beginning and end of the school year (before and after the intervention), is included in Appendix 1. Most of the items included in the survey have been taken from national surveys which have attempted to measure tobacco use behaviors and diet and physical activity. Thus, findings from this survey should allow comparison with national prevalence estimates. The survey measures the following behaviors:

- Attitudes about physical appearance;
- Past and current use of cigarettes;
- Attitudes and Beliefs about tobacco use;
- Diet and physical activity;
- Demographics

Studies indicate that students' reporting of drug use behaviors is more accurate when the information is collected anonymously (5). Students were assured of confidentiality. By assigning a numerical code to each student, students were not be required to put their name on the survey, and only the research staff had the ability to link students' responses with their name. RPCI coordinated the survey administration but worked closely with administrators, teachers, and staff to implement the survey. All surveys were identified by a unique numeric code. This enabled the linking of data from the pre-intervention survey with data from the post-intervention survey for each individual. RPCI maintains confidentiality of all participant information. Teachers will not have access to the results from participants at any time.

THE INTERVENTION

The software tool to be used in this study is called APRIL age progression software (developed by Aprilage Development, Inc., www.aprilage.com). This tool demonstrates how one's face can change with age due to smoking, obesity and sun exposure. Originally intended to be used in science exhibitions, this computer program can denote the difference between the facial features of smokers and non-smokers as they grow older.

Digital pictures were taken of all consenting students the day that the baseline survey was administered. After a 24-48 hour processing period, AprilAge provided an access code to RPCI investigators for each student so that the results could be viewed securely on-line. The results consisted of two images; one image aged the digital photograph according to typical facial aging and wrinkling observed in non-smoking persons. The second image will show facial aging compounded by the effects of either cigarette smoking or obesity upon facial wrinkling (i.e., premature, more severe wrinkling pattern and skin color changes). In addition, results were available by viewing a sequence of images in progression for each year so students could see the differences between images evolve over time. One class period (in a room with computers available) was devoted to assisting students with accessing their aging results, and discussing the results with those who have questions or concerns.



This set of pictures is an example of what participants will see. On the far left is the current (age 16) picture. The center is the same person “aged” to age 55 as a non-smoker, and the far right shows the person “aged” to age 55 as a smoker.

RESULTS

CHARACTERISTICS OF RESPONDENTS

Table 1 shows the gender and racial characteristics of participants at the time of the baseline survey. In each grade, approximately 80% of participants were white, 3% African-American, and 15% other races, and more than half of the respondents were female. 1% of 8th graders and 6% of 10th graders reported that they have smoked cigarettes in the past 30 days. Finally, over 90% of all students either agreed or strongly agreed with the statement, “How I look is important to me”.

ATTITUDES ABOUT THE DEMONSTRATION

Table 2 shows responses to questions about the demonstration. Almost all of the students remembered participating in the demonstration (97% in the tobacco condition and 96% in the obesity condition). Among these students, over 70% reported that they talked to someone about it afterwards. 77% of those in the tobacco condition and 72% of those in the obesity condition reported that the demonstration said something important to them. These latter two measures are items that are commonly used to rate health related television ads, and the observed levels of recall and response to the aging demonstration are extremely high.

INTENTION AND WILLINGNESS TO SMOKE

Table 3 shows predictors of intention to smoke in the next year among those who were nonsmokers at baseline. Neither of these measures showed differences between groups. Six percent of those in the tobacco condition and 5% of those in the obesity condition reported an intention to smoke cigarettes in the next year. Among 8th graders, 5% of those in the tobacco condition and 6% of those in the obesity condition reported an intention to smoke cigarettes in the next year. Among 10th graders, 8% of those in the tobacco condition and 3% of those in the obesity condition reported an intention to smoke cigarettes in the next year.

Table 4 shows ‘Willingness to Smoke’, derived from three measures. The questions were, “The next time you are with your friends, if someone offered you a cigarette, how likely would you be to... 1) Take it and smoke it? 2) Leave the situation? 3) Tell them ‘No Thanks’?” Like the Intention to Smoke measure, the results were comparable between groups for each of these measures.

DIET AND PHYSICAL ACTIVITY

Table 5 shows the percent who reported healthy behaviors more often at follow-up, compared to baseline (drinking 100% fruit juice, eating fruits vegetables, avoiding soft drinks and fast food, and playing sports on a regular basis, either as part of a team or for fun. While some measures were pointed in the predicted direction (e.g., eating more vegetables, 28% in the obesity condition vs. 22% in the tobacco condition), the differences were not consistent across all measures and did not reach statistical significance.

SMOKING STATUS

Table 6 shows the percent of students classified as smokers and baseline and follow-up, by condition. Progression to smoking was significantly lower in the tobacco group (2%) compared to the control group (5%). While there were very few smokers at baseline, a greater percentage of those in the tobacco condition had stopped smoking at follow-up compared to those in the obesity condition, although the results were not statistically significant.

LESSONS LEARNED

The intervention demonstrated that it is feasible for researchers and school officials to collaborate to integrate a novel technology into the classroom. One of the successes of this intervention was its resonance with students; across the board they remembered and liked the demonstration. Compared with most typical, didactic lessons, this aging lesson had a great impact on the students.

There is some indication that the progression to smoking over the school year was less in those who were aged under the tobacco condition, although these results are not uniformly consistent. Given the brevity of the intervention – just a single classroom period – and the duration of follow-up, these findings suggest the intervention may hold promise as a health promotion tool. The questions about diet and physical activity did not result in any consistent findings. However, the group that received this intervention was small, so it is difficult to draw conclusions about the obesity intervention from this study.

NEXT STEPS

The data from this pilot study will be included in a grant application to the National Cancer Institute. The subsequent design will hopefully include a larger sample size and a more diverse student population both in terms of race/ethnicity and socioeconomic status. Based on the experience gained from this study, we will consider modification to the intervention implementation and delivery to maximize its impact while minimizing school and student burden.

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Table 1. Characteristics of the Sample (n=862)

	8th Grade (n=460)		10th Grade (n=402)	
	N	%	N	%
Condition				
Tobacco	316	68.7	338	84.1
Obesity	144	31.3	64	15.9
Gender				
Male	213	46.3	166	41.3
Female	247	53.7	236	58.7
Race				
White	373.0	81.1	339.0	84.3
Black	13	2.8	13	3.2
Hispanic	14.0	3.0	18.0	4.5
Asian	44	9.6	27	6.7
Other	16	3.5	5	1.2
Smoked in the Past 30 Days				
No	453	98.5	377	93.8
Yes	3	0.7	22	5.5
"How I look is important to me"				
Strongly agree	123	26.7	107	26.6
Agree	297	64.6	274	68.2
Disagree	37	8.0	20	5.0
Strongly disagree	0	0.0	1	0.2

Table 2. Attitudes about the Intervention

Overall	Tobacco Condition		Obesity Condition	
	N	%	N	%
Do you remember the demonstration?				
Yes	630	96.9	200	96.2
No	20	3.1	8	3.8
Did you talk to anyone about it?				
Yes	452	71.7	145	72.1
No	178	28.3	56	27.9
This demonstration said something important to me				
Strongly agree	122	19.3	24	11.9
Agree	363	57.4	120	59.7
Disagree	108	17.1	49	24.4
Strongly disagree	39	6.2	8	4.0

8th Grade	Tobacco Condition		Obesity Condition	
	N	%	N	%
Do you remember the demonstration?				
Yes	306	97.5	138	95.8
No	8	2.5	6	4.2
Did you talk to anyone about it?				
Yes	210	68.6	96	69.1
No	96	31.4	43	30.9
This demonstration said something important to me				
Strongly agree	77	25.1	18	12.9
Agree	189	61.6	85	61.2
Disagree	29	9.4	31	22.3
Strongly disagree	12	3.9	5	3.6

10th Grade	Tobacco Condition		Obesity Condition	
	N	%	N	%
Do you remember the demonstration?				
Yes	324	96.4	62	96.9
No	12	3.6	2	3.1
Did you talk to anyone about it?				
Yes	242	74.7	49	79.0
No	82	25.3	13	21.0
This demonstration said something important to me				
Strongly agree	45	13.8	6	9.7
Agree	174	53.5	35	56.5
Disagree	79	24.3	18	29.0
Strongly disagree	27	8.3	3	4.8

Table 3. Intention to Smoke in the Next Year (Among current non-smokers, n=830)

	Condition	N	%
Overall	Tobacco	622	6.4
	Obesity	204	5.4
8th Grade	Tobacco	307	4.9
	Obesity	142	6.3
10th Grade	Tobacco	315	7.9
	Obesity	62	3.2

Table 4. Percent with Responses that Indicated Less Willingness to Smoke at Follow-Up, Compared with Baseline (Among current non-smokers, n=830)

Condition	The next time you are with your friends, if someone offered you a cigarette, how likely would you be to...			
	Take it and Smoke it?	Leave the Situation?	Tell them 'No thanks'?	Mean Score*
Tobacco	7.3	20.5	14.1	24.9
Obesity	5.1	21.2	13.1	24.2

*Note: A Higher Mean Score indicates Less Willingness to Smoke

Table 5. Changes in Responses to Diet and Physical Activity Questions from Pre to Post Test

% Who Responded that their Behaviors Were Healthier at Follow-up Compared to Baseline (n=862)								
Condition	Drink 100% fruit juice	Eat fruit	Eat vegetables	Drink regular soft drinks	Eat at a fast food restaurant	Walk, skate or ride a bike	Play or practice team sports	Play sports for fun
Tobacco	25.7	30.2	21.9	22.4	22.0	41.7	29.0	32.3
Obesity	32.4	28.0	28.2	22.7	23.8	40.0	30.2	35.4

Note: * p<0.05 from Chi Square test

Table 6. Smoking Status at Follow-up by Smoking Status at Baseline and Study Condition

			N	Percent who were Smokers at Follow-up	Percent who were Non-smokers at Follow-up
Overall	Tobacco Condition	Baseline Smoker	22	68.2	31.8
		Baseline Non-smoker	625	2.4	97.6
	Obesity Condition	Baseline Smoker	3	100	0
		Baseline Non-smoker	205	4.9	95.1
8th Grade	Tobacco Condition	Baseline Smoker	2	0.0	100.0
		Baseline Non-smoker	310	1.0	99.0
	Obesity Condition	Baseline Smoker	1	100.0	0.0
		Baseline Non-smoker	143	5.6	94.4
10th Grade	Tobacco Condition	Baseline Smoker	20	75.0	25.0
		Baseline Non-smoker	315	3.8	96.2
	Obesity Condition	Baseline Smoker	2	100.0	0.0
		Baseline Non-smoker	62	3.2	96.8