

NEW JERSEY DEPARTMENT OF EDUCATION AND  
ROWAN UNIVERSITY CENTER FOR ADDICTION STUDIES

SOCIAL NORMS PROJECT  
2007-2008

SOCIAL NORMS REPORT

Nadine M. Connell, Ph.D.  
Shawn M. Flower, Ph.D.  
Pamela M. Negro, MSW, LCADC  
Dawn M. Reilly, M.A., Ed.S., NCSP  
Allison N. Pearce, BA

September 2008

This project was funded by the New Jersey Department of Education and Rowan University Center for Addiction Studies. The authors would like to thank the New Jersey Middle and High Schools who participated in this evaluation. Points of view or opinions contained within this document are those of the authors and do not necessarily represent the official position or policies of the New Jersey Department of Education and Rowan University Center for Addiction Studies.

## Table of Contents

Table of Contents .....	i
List of Tables .....	iii
Executive Summary .....	iv
Chapter I: Introduction.....	1
Program Description .....	3
Chapter II: Middle School Bullying Campaign.....	7
Part I: Current Year Results.....	7
Program Implementation.....	7
Survey Methodology.....	13
Data and Measures.....	14
Sample .....	19
Method of Analysis.....	23
Regression Results.....	25
School and Classroom Environment.....	26
Self-Reported Victimization, Bullying Behavior, and Beliefs about Bullying.....	28
Perceptions of Others' Victimization, Bullying Behaviors, and Beliefs about Bullying.....	32
Part II: Middle Schools: Longitudinal Cohort 1 Analysis .....	37
Sample .....	37
Method of Analysis.....	42
Differences Between Time Periods .....	43
Scale Outcomes.....	43
Behavioral Outcomes .....	45
Regression Results.....	48
School and Classroom Environment.....	49
Self-Reported Victimization, Bullying Behavior, and Beliefs About Bullying.....	50
Perceptions of Others' Victimization Experiences, Bullying Behavior, and Beliefs About Bullying.....	53
Chapter III: High School ATOD Campaign.....	57
Part I: Current Year Results.....	57
Program Implementation.....	57
Survey Methodology.....	62
Data and Measures.....	63
Sample .....	68
Method of Analysis.....	72
Regression Results.....	73
Perceptions of Abstinence.....	74
Tobacco Resistance Skills .....	77
Cohort Differences .....	79
Part II: High Schools: Longitudinal Cohort 1 Analysis.....	81
Sample .....	82
Method of Analysis.....	86
Differences Between Time Periods .....	87
Scale Outcomes.....	87
Behavioral Outcomes .....	90

Regression Results.....	94
Negative Consequences of Drinking .....	95
Behavioral Outcomes .....	96
Perceptual Outcomes .....	97
Chapter VII: Recommendations and Conclusion.....	102
Recommendations.....	102
Monitor Implementation Rigorously .....	102
Obtain Missing Race Data for Cohort 2 Schools .....	103
Obtain Comparison Schools .....	104
Focus Group Studies.....	106
A Variety of Campaign Approaches .....	107
Conclusion.....	108
References .....	111
Appendix A: Implementation Standards .....	112
Appendix B: School Activity Report.....	114
Appendix C: The Middle School Survey .....	116
Appendix D: Middle School Exposure Questions .....	122
Appendix E: Middle School Parental Consent Form.....	123
Appendix F: Correlation Matrix of Variables in Bullying Regression Models.....	124
Appendix G: High School Survey .....	128
Appendix H: High School Exposure Questions .....	135
Appendix I: High School Parental Consent Form.....	136
Appendix J: Correlation Matrix of Variables in ATOD Regression Models .....	137

## List of Tables

Table 1: Middle School Implementation Standards, Descriptives and Results .....	9
Table 2: Bullying Scale Reliabilities .....	15
Table 3: Bullying Descriptives: School Level/Aggregated Measures.....	19
Table 4: Demographic Characteristics for Middle School Sample – Full Sample.....	20
Table 5: Demographic Descriptives by Cohort.....	21
Table 6: Demographic Characteristics for Middle School Sample – Individual Schools.....	23
Table 7: Bullying Results - School Environment .....	27
Table 8: Bullying Results – Feeling Safe in School .....	28
Table 9: Bullying Results – Self-Reported Victimization .....	29
Table 10: Bullying Results – Self-Reported Bullying Others.....	31
Table 11: Bullying Results – Self-Reported Beliefs about Bullying .....	32
Table 12: Bullying Results – Perceptions of Others’ Victimization .....	33
Table 13: Bullying Results – Perceptions of Others’ Bullying Behavior.....	35
Table 14: Bullying Results – Perceptions of Others’ Beliefs about Bullying .....	36
Table 15: Demographic Characteristics for Middle School Sample – Cohort 1/Time 3.....	39
Table 16: Demographic Characteristics for Middle School Sample by Time and School .....	41
Table 17: Bullying Scale Outcomes, by Time Period .....	44
Table 18: Bullying Behavior Outcomes, by Time Period .....	47
Table 19: Bullying Results – School Environment .....	50
Table 20: Bullying Results – Self-Reported Behavioral Outcomes .....	52
Table 21: Bullying Results – Self-Reported Perceptual Outcomes.....	55
Table 22: High Schools Implementation Standards, Descriptives and Results .....	59
Table 23: ATOD Scale Reliabilities.....	64
Table 24: ATOD Variables - School Level/Aggregated Measures .....	68
Table 25: Demographic Characteristics for High School Sample – Full Sample.....	69
Table 26: Demographic Variables by Cohort.....	70
Table 27: Demographic Characteristics for High School Sample – Individual Schools .....	71
Table 28: ATOD Results - Perceptions of Tobacco Abstinence .....	76
Table 29: ATOD Results - Tobacco Resistance Skills .....	77
Table 30: ATOD Results - Tobacco Resistance Skills Including Smokers .....	78
Table 31: Demographic Characteristics for High School Sample – Cohort 1/Time 3.....	83
Table 32: Demographic Characteristics for High School by Time and School.....	85
Table 33: ATOD Scale Outcomes, by Time Period.....	88
Table 34: ATOD Behavioral Outcomes, by Time Period.....	92
Table 35: ATOD Results – Negative Consequences of Drinking.....	96
Table 36: ATOD Results – Behavioral Outcomes .....	97
Table 37A: ATOD Results – Perceptual Outcomes for Tobacco and Alcohol.....	99
Table 38B: ATOD Results – Perceptual Outcomes for NOT Using Tobacco and Alcohol.....	100

## **Executive Summary**

Beginning in 2005, the New Jersey Department of Education and Rowan University Center for Addiction Studies have funded two social norms campaigns conducted in New Jersey schools. Specifically, a bullying social norms program conducted in middle schools, and an alcohol, tobacco and other drug use (ATOD) social norms campaign in high schools. The objective of these social norms campaigns is to educate students about the reality of bullying activity and ATOD/substance use by presenting information based on surveys completed by the students in the schools where the campaigns were implemented. Thus the campaign was tailored to include statistics about what their peers actually think and do within the context of their own school. These campaigns were based on the premise that armed with the correct information, students would internalize the messages, and respond with commiserate reductions in bullying and ATOD/substance use behaviors and attitudes (Connell, et al. 2007a; Perkins, 2003).

The overall results of this program for the school year 2006-2007 are available in the reports by Connell, et al., issued in August 2007 (2007a) and September 2007 (2007b) and in Flower (2007). The 2006-2007 analysis included an assessment of the survey results while accounting for the gender and race of students and the impact of exposure to the social norms campaign on the outcomes (Connell, et al. 2007a, 2007b), as well as measures of program implementation fidelity among the nine middle schools and nine high schools participating during that year (Flower, 2007). The social norms campaign has continued into the 2007-2008 school year, with 34 schools; nineteen middle schools are engaged in the anti-bullying campaign and 15 high schools are conducting ATOD campaigns. Six middle schools and five high schools have continued participating into the 2007-

2008 school year (cohort 1), while the 23 remaining schools were new to the project this year (cohort 2).<sup>1</sup>

In addition, in accordance with the recommendations of Connell, et al. (2007a, 2007b) and Flower (2007), the campaign instituted implementation standards (Appendix A) and data were collected through a school activity report (Appendix B) to ascertain the level of program fidelity for each school and overall. By combining the information contained within the school activity reports submitted, 13 of the 15 middle schools and all of the high schools provided a measure of implementation fidelity. Overall, these results indicate that of the 12 implementation standards, the middle schools met 5 of the standards (see Table 1 for summary measures of the middle school process evaluation); the high schools met 6 of the 12 standards (Table 22), although they differed somewhat in which standards were met.

In addition to providing details of the process evaluation, this report contains the survey findings for the current year for all of the schools in the bully and ATOD campaigns, with the analysis provided on both cohorts combined and each cohort separately (Part I). Part II of the report explores the findings of schools that have been engaged in the campaigns over the last three years, comparing outcomes between time periods. Finally, Part II also incorporates an exposure to the campaign to assess the impact of these factors on the outcomes. The results are summarized by campaign below.

---

<sup>1</sup> Of the 9 new high schools, 3 schools either did not survey their students in the current year, or surveyed too late to include in this report. Likewise, of the 13 new middle schools, 4 schools did not survey in time. The analysis thus reports out on the activities and survey results of 12 high schools and 15 middle schools engaged in the social norms campaign.

## ***Bullying Campaign***

### Current Year Results

For the analysis of the bullying campaign, two variables were added to the examination which resulted in some key findings. First, an aggregated variable of the item “I feel safe” provided an overall estimate of the students’ feelings of safety in the school, by school. Secondly, the models include a measure of those who identified as having felt bullied over the past year (“I felt bullied”).

The results of these analyses indicate that:

- Feeling safe and feeling bullied are not complementary;
- Students who feel bullied are more likely to bully others;
- Those who view school as a safer place are less likely to bully others;
- Students in schools that are considered to be safer overall are less likely to perceive that others were victims of bullies;
- Larger schools are less likely to have a school environment where students feel safe;
- Youth in larger schools are more likely to perceive that others see bullying behaviors as acceptable.

### Cohort 1 Analysis

The examination of the six Cohort 1 middle schools during the three time periods resulted in key findings consistent with what would be expected from social norms campaigns. Using independent samples t-test to look at differences between outcomes across time periods, the results indicated that:

- Students in schools participating in the social norms campaign for over one year showed a significant increase in their perceptions of school environment;
- Student perceptions of peers’ victimization, bullying behaviors, and beliefs about bullying showed a significant decrease from the inception of the social norms study, suggesting that their perceptions are coming in line with reality;

- Students in Cohort 1 schools reported less bullying throughout the course of the social norms study.

The differences between Time 1 and Time 3 in these data suggest that the social norms campaign was successful in helping students gain a more realistic perspective on bullying in their schools. Given that Time 3 exhibited the highest perceptions of school environment and the lowest perceptions of bullying behavior, this time period was used to examine the impact of exposure to the social norms campaign on outcomes. These analyses, utilizing an Ordinary Least Squares regression model, suggest that:

- Students reports of how safe they feel at school are related in the expected direction to the scale outcomes of school environment (positive), self-reported victimization (negative), and beliefs about bullying (negative);
- Bullying and being victimized do not appear to be related, suggesting that students who bully are not doing so because they themselves feel at risk;
- Exposure to the social norms campaign is related to a more positive perception of school environment as well as to increased reporting of others' either being victimized or engaging in bullying behavior.

## ***ATOD Campaign***

### Current Year Results

For the ATOD campaign, the models explore the scale outcomes, accounting for individual differences, and while accounting for differences between schools, including an aggregated variable capturing the proportion of students who reported smoking over the prior 30 day period as well as the size of the school. Findings pattern consistently with the previous year's results, but the addition of these measures adds to our knowledge of these data, including:

- There is a link between tobacco use and alcohol and other drug use; and this link involves both behavioral and perceptual ATOD measures.
- Students attending schools with more self-identified smokers report drinking alcohol more frequently over the prior 30 days period;



- Students attending schools with more self-identified smokers report higher perceptions of others' marijuana use;
- Students attending schools with more self-identified smokers report higher perceptions of others' drug use.

There were also key differences between the cohorts on the outcomes examined. This may be an indicator of differing samples selected for the survey. Alternatively, differences between cohort schools could be indicative of the impact of the social norms campaign on Cohort 1 students. Findings that suggest this include:

- Older students in cohort 2 report significantly higher perceptions of others' tobacco use, but this was not a significant factor in Cohort 1;
- Cohort 2 students who were older, boys, and students who have lower GPAs report higher frequency of marijuana use in the prior 30 day period;
- Students with lower grades drink more often than those with better grades;
- Male students are less likely to utilize drinking resistance skills;
- Male students, and those with a lower GPA, smoke cigarettes more frequently.

### Cohort 1 Analysis

The examination of the five Cohort 1 high schools during the three time periods resulted in key findings consistent with what would be expected from social norms campaigns. Using independent samples t-test to look at differences between outcomes across time periods, the results indicated that:

- Both smoking and drinking resistance skills increased between Time 1 and Time 3, leaving students at Time 3 with stronger substance resistance skills;
- Students in schools participating in the social norms campaign for over one year decreased in their perceptions of how much their peers used marijuana and illicit drugs, consistent with the explanation that students' perceptions were more in line with reality'

- The only significant finding for trends in behavioral outcomes was that students in Cohort 1 decreased in the percentage of their peers who they believed had ridden with a drinking or drunk driver;
- The majority of behavioral outcomes were seen to increase during Time 2 and decrease during Time 3, suggesting that the spring semester continues to be a risky time for high school students and may need additional programmatic attention;
- GPA continues to be a protective factor for students against smoking and alcohol use; students with a higher GPA also appear to have more realistic perceptions of peers' behavior;
- Variables that measure exposure to the social norms campaign are consistent in their relationship with perceptual outcomes, where students with more exposure perceive less negative behavior.

## Recommendations

- Future evaluations should continue to involve schools in the creation of process evaluation reports in order to enhance reporting and fidelity to the campaign model.
- Future evaluations should consider both the use of comparison school designs and the inclusion of focus groups. Both of these strategies can be used to help bolster the research designs and lead to more robust findings with a minimum of required resources.
- Cohort 2 schools should continue to participate in the social norms campaign for the 2008-2009 school years so that the long term impact of fidelity can be measured on social norms campaign implementation.
- There was a substantial shift from Cohort 1 to Cohort 2 schools in the demographic composition of the samples. This may be in part attributable to the missing race variable in four middle schools and four high schools in Cohort 2. Future evaluations should continue to explore the impacts of demographic characteristics on outcomes in an effort to create social norms campaigns that can be tailored to specific school populations.
- Schools with a higher proportion of smokers are likely to be similar to other schools with a commensurate proportion of smokers. Given the significant link between smoking and alcohol and other drug use, these schools may wish to specifically target (either a component or to a particular population of students) their social norms campaign activities towards reducing cigarette smoking.
- Trend analysis of Cohort 1 high schools suggests that the increase in ATOD behaviors during the spring term is not consistent with overall attitudes and behaviors. Prior evaluations suggest that this jump could be related to prom, spring break, and other end of the school year festivities. The data show that the social norms campaign may not be

able to impact a change in these behaviors on its own; schools are encouraged to continue to utilize other methods to discourage risky behavior during these time periods and not rely solely on the social norms campaign.

## Conclusion

Results of both the cross-sectional analyses for data collected during the 2007-2008 school year and the trend analysis over three time periods are consistent in their support for the continued use of the social norms campaign. As expected, students behaviors are related to their perceptions; furthermore, examination of trends across time suggest that students' perceptions are slowly becoming commensurate with their peers' behavior. These findings are in line with the expected results of social norms campaigns and are consistent with previous findings at both the high school and the college level (see Perkins 2003; 2004).

As the schools begin implementing the social norms campaign for the third year, efforts should be made to continue the collection of implementation data and to examine the possibilities of implementing some of the recommendations suggested here. Moving forward, both program administrators and evaluators should concentrate on how the social norms campaign can be continued within the schools without the ongoing support from the Center for Addiction Studies (the New Jersey Department of Education will continue to offer support in various forms for schools who wish to continue to implement the campaign). A plan towards replication should also be designed, as the success of such a program is sure to attract attention from others and the continued fidelity of the social norms campaign is paramount for such success to endure.

## **Chapter I: Introduction**

Beginning in 2005, the New Jersey Department of Education and Rowan University Center for Addiction Studies have funded two social norms campaigns conducted in New Jersey schools. Specifically, a bullying social norms program conducted in middle schools, and an alcohol, tobacco and other drug use (ATOD) social norms campaign in high schools. These campaigns were implemented in order to test the social norms approach to promoting positive behavior and decreasing at-risk behavior in youth. Prior research indicates that youth behaviors and attitudes are strongly influenced by what individuals believe their peers believe, yet perceptions of peer norms are not realistic (Connell, et al., 2007a; Perkins 2003). Too often these norms are overestimated (e.g., everyone smokes – and everyone knows that!) and this information may be used by youth to rationalize their own behaviors and attitudes. The objective of these social norms campaigns were to educate students about the reality of bullying activity and ATOD/substance use by presenting information based on surveys completed by the students in the schools where the campaigns were implemented. Thus the campaign was tailored to include statistics about what their peers actually think and do within the context of their own school. These campaigns were based on the premise that armed with the correct information, students would internalize the messages, and respond with commiserate reductions in bullying and ATOD/substance use behaviors and attitudes (Connell, et al., 2007a; Perkins, 2003).

The overall results of this program for the school year 2006-2007 are available in the reports by Connell, et al., issued in August 2007 (2007a) and September 2007 (2007b) and in Flower (2007). The 2006-2007 analysis included an assessment of the survey results while accounting for the gender and race of students and the impact of exposure to the social norms campaign on the outcomes (Connell, et al. 2007a, 2007b), as well as measures of program implementation fidelity among the

nine middle schools and nine high schools participating during that year (Flower, 2007). The social norms campaign has continued into the 2007-2008 school year with 34 schools; nineteen middle schools are engaged in the anti-bully campaign and 15 high schools are conducting ATOD campaigns. Six middle schools and five high schools have been involved for more than one year (cohort 1) while the remaining schools were new to the project this year (cohort 2).<sup>2</sup>

In accordance with the recommendations of Connell, et al. (2007a; 2007b) and Flower (2007), the 2007-2008 campaign instituted implementation standards (Appendix A) and data were collected through a school activity report (Appendix B) to ascertain the level of program fidelity for each school individually and throughout the overall campaign. While this first effort garnered richer data than during the prior year, the process evaluation was largely hindered by non-compliance with reporting requirements. Even after adjusting for the new schools who began their programs after the first reporting period (defined as September to December), only four of the high schools, and none of the middle schools, reported for every period for which there should have been a report.<sup>3</sup> By combining the information contained within the school activity reports submitted, 13 of the 15 middle schools and all of the high schools provided a measure of implementation fidelity. These findings will be reported in the campaign-specific chapters to follow.

In addition to providing results of the process evaluation, this report contains the survey findings for the current year for all of the schools in the bully and ATOD campaigns, with the analysis provided on both cohorts combined and each cohort separately (Part I). Part II of the report explores the findings of schools that have been engaged in the campaigns over the last three

---

<sup>2</sup> Of the 9 new high schools, 3 schools either did not survey their students in the current year, or surveyed too late to include in this report. Likewise, of the 13 new middle schools, 4 schools did not survey in time. The analysis thus reports out on the activities and survey results of 12 high schools and 15 middle schools engaged in the social norms campaign.

<sup>3</sup> In addition, several cohort 1 schools were negotiating teacher contracts in the third reporting period which limited engagement in the social norms project activities. This barrier was taken into consideration in determining reporting compliance.

years. Finally, Part II also incorporates exposure to the campaign to assess the impact of these factors on the outcomes.

This report is structured to reflect both the two parts of the report within the two different types of social norms campaigns conducted (bullying in the middle schools and ATOD/substance use in high schools) while consolidating the common elements of the study. To that end, a brief description of the program and the social norms approach are provided below. Then each of the campaigns are presented separately, so to clearly distinguish the implementation and results of the bullying middle school campaign from the implementation and results of the high school ATOD/substance use campaign. Chapter 2 contains the findings for the middle school bullying campaign (both current year results in Part I and campaign implementation and longitudinal analysis in Part II). Results of the high school ATOD campaign follow in Chapter 3, again distinguished by Part I and Part II. This report concludes with a discussion in Chapter 4 with limitations and suggestions for future directions for the evaluation overall.

### ***Program Description***

In recent years, two major problems impacting school youth have been identified: substance use and abuse and bullying. Several states have attempted to address these problems in numerous ways including the use of scare tactics, DARE programs, counseling initiatives. Prevention programs, especially those that address the issues of under-age alcohol and drug use, are common parts of the curriculum in most schools. More recently, as educators begin to realize the negative impacts associated with bullying, schools are using traditional substance abuse prevention programs as a model to address the growing bullying problem.

The current study is an evaluation of two types of prevention programs implemented since 2005 that utilize the social norms approach to bring about environmental change within schools.

The first type of prevention program targeted bullying behavior at the middle school level. Nineteen<sup>4</sup> middle schools throughout the state of New Jersey participated in a social norms campaign that informed students that most youth do not engage in bullying behaviors and how most youth prefer to treat others in friendly and positive ways. The second type of prevention program targeted alcohol, tobacco, and other drug use at the high school level. Fifteen<sup>5</sup> high schools throughout the state of New Jersey participated in a social norms campaign designed to inform students about the substance use of their peers and help dispel myths that substance use is a common activity. A brief description of the overall approach is provided below.

### **The Social Norms Approach**

Research suggests that individuals may oftentimes act in ways that they believe are consistent with behavioral expectations in certain circumstances; for instance, they may behave in ways that they believe are in keeping with the norms or beliefs of their social group, not in ways that are necessarily consistent with their belief system. Research conducted by Perkins and various colleagues (see Perkins, 2003) has shown that when accurate information is disseminated within an environmental context, such as an informational poster campaign, it can work to change group or population norms. Such campaigns work off the premise that giving individuals more accurate information about behaviors of other people, rather than relying on their perception of other's behaviors, provides information necessary to make better decisions; consequently, they will act in ways consistent with the actual group norm rather than the perceived group norms (Perkins, 2003; Perkins & LaMastro, 2006).

---

<sup>4</sup> Four of the 19 middle schools did not survey their students in time to be included in the current analysis.

<sup>5</sup> Three of the 15 high schools did not survey their students in time to be included in the current analysis.

The techniques utilized in a social norms approach to advocate social change are varied; the goal is to provide “accurate information in an environmental context” in order to “reduce problem behavior and enhance protective behavior” (Perkins, 2004, pg. 6). In many ways, these techniques utilize commercial marketing models to promote social change. While approaches to social norms campaigns vary, several principles utilized in successful campaigns have been identified. These principles include establishing an environment conducive to change, using unbiased empirical data, and then implementing a campaign to provide maximum exposure to the information (Perkins & LaMastro, 2006).

In the state of New Jersey, successful social norms campaigns have been conducted at the university level (see Perkins & LaMastro, 2006 for a complete overview; Perkins, 2004). Students who attended universities with high exposure to social norms campaign were able to recall messages received throughout the school year and were more likely to accurately perceive drinking norms on campus. Students in schools with high exposure to the information in the campaign were also engaged in lower levels of drinking than students with low levels of exposure to the social norms campaign (Perkins & LaMastro, 2006). Such evidence, coupled with findings from evaluations of social norms campaigns at the high school level (see Perkins & Craig, 2003 and Haines, Barker, and Rice, 2003), suggest that a social norms campaign at the high school level could be effective in reducing both misperceptions about substance use and participation in substance use.

The following report describes the survey design and administration of the survey, provides details on the process evaluation which captures fidelity of implementation of the social norms campaigns by the middle and high schools, as well as explicating measures of various behaviors and perceptions for both the middle and high school students. Characteristics of the current year sample



are provided in Part I within each campaign specific chapter and are compared to the demographics of the participating schools.<sup>6</sup>

---

<sup>6</sup>Four of the middle schools and four of the high school data files from cohort 2 did not include the race of the respondent. Dr. Wes Perkins, who developed these surveys and hosts the data files for administrations from 2006-2007, indicated concerns that including the race of the respondent in a school with a small sample size would put the individual at risk of being identified. Prior research with these data has indicated a strong relationship between race and the outcomes explored in this study. For this reason, the analysis will be conducted two ways – with and without this variable to allow for comparison as any findings that incorporate race of the respondent in the model will automatically exclude those schools with these missing data.

## **Chapter II: Middle School Bullying Campaign**

### ***Part I: Current Year Results***

There has been little research on implementation of a bullying social norms campaign. To date, studies have been largely descriptive (see in particular Connell, et al. 2007a; Connell, et al. 2007b; and, Flower, 2007). However, based on the success of social norms campaigns in general in both high schools and colleges (Far & Miller, 2003; Perkins, 2003, 2004; Perkins & LaMastro 2006), there is reason to believe that this strategy can be an effective tool for reducing both bullying behavior and perceptions of bullying behaviors among student populations. Part II of the present study seeks to explore this question more in depth by utilizing multiple years of data and incorporating exposure into the models. Part I details the implementation of the campaign amongst the schools that participated in the social norms project, describes the sample, and provides the survey results for the current year.

#### *Program Implementation*

Implementation of the social norms program has a number of components. In addition to attending training sessions at the Center for Addiction Studies, conducting steering committee meetings and discussing the campaign with teachers both inside and outside of faculty meetings, the middle schools involved in the bullying social norms campaigns utilized up to seven additional strategies to relay the campaign message. The messages were printed on posters, contests (a school-wide) were held, games (individual approach such as a paper puzzle) were played; prizes (something won for already knowing the message) were won; giveaways (as incentives or given out freely) were handed out, and assemblies, and/or large group gatherings were held. There were also “other”

strategies implemented, which for the purposes of these analyses were put into a separate category to capture project activities<sup>7</sup>.

One of the recommendations from the evaluation last year was to standardize program implementation (Connell, et al. 2007a; Flower 2007) to more accurately capture the programmatic activities of the schools. These prior reports noted that the quality and quantity of information about implementation varied considerably between schools, resulting in a recommendation that implementation data should be collected periodically and systematically so that these data can be used to provide the schools feedback on their progress in meeting their implementation goals. This would give schools an opportunity to revise their implementation approach to enhance the probability of meeting their implementation goals. In response, in the beginning of the campaign year, the Center for Addiction Studies (CAS) program administrators worked with the evaluators to establish implementation standards for all schools for both campaigns (See Appendix A). In addition, schools were provided a “School Activity Report” (See Appendix B) with which to capture the data necessary to ascertain fidelity to the program standards. These forms were to be completed by the schools three times per year (after the second, third, and fourth quarters) and submitted to CAS<sup>8</sup>.

The data from these reports indicate that of the 12 implementation standards, the middle schools met 5 (see Table 1). Middle schools met the standards related to discussion of the campaign in faculty meetings (85% of schools report discussing the campaign three times over the course of the year) and attending required training sessions (66.7% of participating new schools attended a regional training session conducted by the Center for Addiction Studies; 33.3% of the new schools

---

<sup>7</sup> The Connell, et al (2007a) report provides rich description of the type of campaigns involved in this project.

<sup>8</sup> It should be noted that despite continuous efforts on the part of the Center for Addiction Studies, many of the schools did not return activity reports in a timely manner. All information described here is that which was self-reported by individual schools. The lack of information available underscores the need for stricter compliance with implementation data reporting.

attended an individualized training session put on by the Center for Addictions Studies), and of those who reported the date of submission, all schools were in compliance with the submitting the consent letter at least two weeks prior to administration of the survey. On two other measures, the middle schools far exceeded their goal in two standards -- actively engaging parents about the campaign (goal was 30% of schools would meet this standard, but 77% did so) and engaging the community (goal 20%, 54% of schools complied). Additionally, although the overall rate of compliance for meeting all of the standards were low (5 of 12 or 42%), in several standards, schools were very close to meeting the goal. For instance, one goal was that 75% of schools would implement at least two strategies to disseminate the messages. The middle schools came close (62%) to meeting this standard, and were also very close to meeting the standard relating to informal discussions of the campaign outside of faculty meetings (85% versus the goal of 90%).

**Table 1: Middle School Implementation Standards, Descriptives and Results**

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
100% of schools will put up posters containing social norms messages.	13	0 to 4	1.69 (1.93)	<b>No</b> – 6 of 13 (46%) schools reported putting up posters
100% of schools will attend at least one social norms training <sup>9</sup> .	13	0 to 1	1.0 (.00)	<b>Yes</b> – 12 of 12 (100%) attended training
100% of schools will have at least one Steering Committee Meeting.	13	0 to 3	1.92 (1.16)	<b>No</b> – 10 of 13 (77%) reported 1 or more Steering meetings

<sup>9</sup> The Center for Addiction Studies implemented two regional trainings for schools involved in the Social Norms Campaign; one in March 2007 and one in August 2007. Only those schools who were new to the social norms campaign (Cohort 2 schools) were required to attend. Eight middle schools attended the March 2007 training. The remaining four schools conducted individualized on-site training sessions for school staff.

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
75% of Schools will implement at least two strategies (e.g., posters, contests, games, giveaways, assemblies and/or other activities) intended to disseminate social norms messages to students.	13	0 to 7	2.54 (2.43)	<b>No</b> – 8 of 13 (62%) implemented 2 or more strategies
50% of schools will communicate the social norms campaign to faculty members by discussing the campaign in faculty meetings at least once per reporting period (a total of three discussions over the school year).	12	0 to 3	1.92 (.90)	<b>Yes</b> – 11 of 12 (85%) schools discussed the campaign during faculty meetings at least 3 times during the year
90% of campaign coordinators will report that in any given month, they had 2 “informal” conversations with other faculty members about the social norms campaign. “Informal” is defined as any conversation outside of a faculty meeting.	12	0 to 3	2.50 (.90)	<b>No</b> – 11 of 13 schools (85%) reported having at least 2 informal discussions in any given month
The administrator, SAC, or teacher responsible for coordinating the social norms campaign in 80% of schools will have one game each reporting period (for a total of three games over the school year) to be made available to faculty for use in classrooms. Games can either be created by the school, or the school can distribute games created by the Center for Addiction Studies.	13	0 to 5	1.15 (1.86)	<b>No</b> – 5 (38%) schools report games were available
75% of campaign coordinators will report that they disseminated at least one game to 20% of the faculty members over the school year.	13	0 to 10	1.46 (3.57)	<b>No</b> – 2 schools (15%) report distributing 1 or more games to any faculty members
100% of schools will send a letter advising parents of the project and seeking parental consent for student participation in the survey no later than 2 weeks prior to administration of the survey.	10	1 to 1	1.00 (0.00)	<b>Yes</b> – 10 of 13 schools who reported the dates consent letters were sent in compliance. Missing data on three schools.

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
30% of schools will report that they <b>actively</b> advised parents about the social norms campaign survey results and/or other campaign activities ( <b>excluding the request for parental consent for student survey participation</b> ) through parent/teacher conference events, Parent Teacher Association meetings, e-mails, or letters sent home and/or other media.	12	0 to 3	1.42 (.90)	<b>Yes</b> - 10 of 13 schools (77%) reporting actively engaging parents
90% of schools will report that they <b>passively</b> advised parents about the social norms campaign about the survey results and/or campaign activities through posting information on a website, school newsletter, or other media that provides a venue to communicate to parents.	12	0 to 3	1.25 (1.05)	<b>No</b> - 8 of 13 schools (62%) reported communicating with parents
20% of schools will report they advised the community about the social norms campaign through article(s) in the newspaper, community meetings, and/or other media.	13	0 to 3	.75 (.87)	<b>Yes</b> – 7 of 13 (54%) schools engaged the community

There were several standards, however, where the schools were far from the benchmark – only 10 schools reported having at least one steering committee meeting (77%), and 6 of the 13 (46%) schools reported placing posters in the school. These two goals are particularly important because the benchmark was 100% for each. These results may be explained, at least in part, by the lack of consistent submission of the activity reports and campaign coordinators possibly forgetting to report aspects of the campaign. This would be particularly salient if only one report was submitted during the school year (as was the case with 10 of the 13 schools who completed a report). In addition, the lack of activity, particularly with regard to putting up posters, may be

because several middle schools did not survey in time to put up posters<sup>10</sup>. That said, however, neither the schools nor program administrators should be discouraged by these results because in the first year of setting implementation standards, the goals are often assigned somewhat arbitrarily, due in part to the lack of base-line data for which to set the parameters. Additionally, the purpose of process evaluation is to provide a way to monitor and improve program components. Armed with these data providing base-line information, this is an opportunity for the schools, the program administrators, and the evaluator to review these standards and findings and adjust then accordingly.

One benefit to having a detailed process evaluation is that it is then possible to measure the relationship between fidelity and program outcomes. The success of any program is dependent on a variety of factors, including the quality of program implementation. An understanding of program implementation in a successful program furthermore offers information necessary for quality replication. In a program like a social norms campaign, where both schools and student populations are diverse, a process evaluation can help ensure that resources are used in the most effective ways. The lack of a quality *objective* program implementation data from the 2006-2007 school year means that longitudinal models for those middle schools who participated in data collection during both time periods cannot identify components of implementation that were successful.<sup>11</sup> The collection of objective implementation criteria during the current year will not only help schools to design strong social norms campaign, but it will also allow for the analysis of the relationship between implementation and program outcomes in future evaluations.<sup>12</sup>

---

<sup>10</sup> The initial survey is used to provide data to the schools for the pro-social messages that will then be disseminated to the students. Without a survey, no messages would be available for poster creation.

<sup>11</sup> Flower (2007) has a detailed description of the way that process measures were created for the 2005-2007 reporting periods. Many of the measures of quality of implementation, however, were taken from ratings of program administrator personnel, and as such, are not suitable for the current analyses of Cohort 1 longitudinal findings.

<sup>12</sup> The interested reader should also realize that the fidelity implementation measures collected during this year cannot be used to measure the impact on outcomes for Cohort 1 schools because implementation measures were not collected until AFTER survey administration. Therefore, the causal model would be incorrect and would lead to inaccurate findings.

### *Survey Methodology*

Students in grades five through eight in the participating middle schools were administered a survey which asked them several questions about their experiences with being bullied, whether or not they engaged in bullying behavior, and any techniques that they employed in order to avoid being bullied (a copy of the Middle School Survey can be found in Appendix C). The survey also asked students questions about their exposure to the social norms campaign at their school, including how often they had seen or heard information about bullying and where they saw or heard this information (Appendix D). The survey also obtained demographic information including age, race, and gender. The surveys were administered from December 2007 through March of 2008. The reading level for both surveys was approximately at the fourth grade reading level, as measured by the Flesch-Kincaid grade level readability statistics.

In order to participate in the survey, students were required to have received parental consent (see Appendix E). Parental consent was obtained by having the students bring home consent forms to their parents and return the consent forms to their teachers. Only students with a parental permission granted on the consent form were allowed to participate in the survey.

The surveys were administered in a computer lab so that students could take the survey on-line. When students arrived at the computer lab, all of the computers were turned on and were logged on with a generic username. The login information for the survey was listed on the front board and students used this to log in to their individual surveys. This login information was changed every class. Students were then reminded that their answers were anonymous. After they completed the survey, students were asked to close the survey. The computers remained on and remained logged in with the generic username for the next set of students.



Each school conducted the survey in one of two ways. In some of the schools, students were taken down to the computer labs in a large group to take the survey. Only those students with proper consent were taken into the computer lab. In the remainder of the schools, students were given a pass to go to the computer lab during the study hall period or lunch. Once they arrived at the computer lab, the students' names were checked against a master list in each lab. In this way, both procedures allowed teachers to ensure that only those students with parental consent took the survey.

### *Data and Measures*

Using the survey data from the middle school students in the schools that participated in the project, the seven scales related to bullying experiences in school from last year's report were replicated (Connell, et al. 2007b). These scales measure a variety of attitudes, including the school climate, perceptions of others' victimization and bullying behaviors, and perceptions of others' beliefs about bullying behaviors. The scales also measure the bullying experiences of the individual respondent, including their personal victimization and bullying behaviors. Table 2 lists all of the scales that were created using the questions from this year's survey. The table also lists the Cronbach's alpha for each scale (as indicated in the table, scale reliabilities range from .75 to .92)<sup>13</sup> as well as the average student response on the scale and the minimum and maximum responses.

---

<sup>13</sup> Generally speaking, scales with an alpha level of .70 or higher are considered adequate (Kerlinger & Lee, 2000).

**Table 2: Bullying Scale Reliabilities**

	Items	Alpha	Range	Mean	N
<b>Survey Scales</b>					
<b>School Environment</b> (higher values indicates more positive climate)	9	.75	1 to 4	3.02	3459
<b>Personal Victimization</b> (higher values indicates more victimization)	7	.85	0 to 3	0.66	3348
<b>Self-Reported Bullying Behavior</b> (higher values indicates more bullying behavior)	8	.88	0 to 3	.35	3292
<b>Beliefs about Bullying</b> (higher values indicates more acceptance of bullying behaviors)	4	.87	1 to 4	1.41	3441
<b>Perceptions of Others' Victimization</b> (higher values indicates higher perceptions of peer victimization)	7	.88	0 to 3	1.49	3344
<b>Perceptions of Others' Bullying Behavior</b> (higher values indicates higher perceptions of peer bullying)	8	.92	0 to 3	1.33	3361
<b>Perceptions of Others' Beliefs about Bullying</b> (higher values indicates high perceptions of others' acceptance of bullying behaviors)	4	.85	1 to 4	1.86	3359

*School Environment:* In order to assess the respondent's experiences at school, a school climate scale was created. This scale utilizes measures that ask students about how they feel at their school. Because the social norms approach is primarily an environmental one (see Perkins & LaMastro, 2006), it is important to assess the student's perception of their environment. Nine items were included in this scale. They were: I feel that other students care about me; I feel that teachers care about me; I am encouraged to help and respect other students; I don't fit in; Other students look to me to show them how to act; I can't do much to change bad things that happen here; I am happy here most of the time; and, Teachers don't really try to stop kids who are bullies. The responses were on a four-point scale and ranged from Strongly Agree (4) to Strongly Disagree (1). Three items (I don't fit in; I can't do much to change bad things that happen here; and, Teachers

don't really try to stop kids who are bullies) were reversed coded to ensure that for all questions, higher responses indicated a more positive school climate. Cronbach's alpha for this scale is .75.

*Personal Victimization:* The first step in preventing bullying behavior in schools is to understand the extent of the problem. This survey asked students several questions about whether or not they had been the victim of various bullying behaviors within the last 30 days. The seven behaviors identified were: pushing, shoving, hitting, kicking, hair pulling, or tripping; teasing in an unfriendly way; being called hurtful names; being excluded from a group to hurt feelings; belongings being taken or damaged; unkind story or rumor spread; and, threatened to be hurt. Students were asked to report whether the behavior had never happened, happened once, two to three times, or four or more times in the last 30 days. These questions were coded so that higher responses indicated more victimization by other students in the school. Cronbach's alpha for this scale is .85

*Self-Reported Bullying Behavior:* Students were also asked to report whether or not they had engaged in bullying behavior by targeting another person in their school in the last thirty days. Students were asked how often they engaged in eight behaviors over the previous month; seven of these behaviors were the same identified on the victimization questions. The eighth was whether or not the respondent has made someone do something they did not want to do. Students were once again asked to report whether the behavior has never happened, happened once, happened two to three times, or happened four or more times. Higher responses on this scale indicate that students are engaging in more bullying behavior. The Cronbach's alpha for this scale is .88.

*Beliefs about Bullying:* Students were asked whether or not they agreed with four different statements about bullying behavior. These statements included: students should not tease in a mean way, call others hurtful names, or spread unkind stories about other students; students should not shove, kick, hit, trip, or hair pull another student; students should not threaten to hit another student even if they don't actually hit the other students; and, students should always try to be friendly with

students who are different from themselves. The respondents were asked to rate their agreement with each statement using a four-point scale, ranging from Strongly Agree (1) to Strongly Disagree (4). The final question was recoded so that higher scores indicated greater acceptance of bullying behavior. Lower responses on this scale indicate a greater agreement with pro-social beliefs about behavior. The Cronbach's alpha for this scale is .87.

*Perceptions of Others' Victimization:* Respondents were asked the same questions about their perceptions of their peers' victimization as they answered with regard to their own victimization. The seven questions included all of the same behaviors as the self-reported scale of personal victimization. Please see the previous discussion on how personal victimization was measured for an in-depth explanation of this scale. Higher values on this scale indicate higher levels of perceived victimization. The Cronbach's alpha for this scale is .88.

*Perceptions of Others' Bullying Behavior:* Just as students were asked about their own recent engagement in bullying behaviors, they were asked to report on their perceptions of whether their peers had engaged in bullying behaviors in the 30 days prior to the survey. The eight behaviors asked were the same as with self-reported bullying: pushing, shoving, etc.; teasing; using hurtful names; excluding someone; taking or damaging belongings; spreading unkind stories; threatening to hurt someone; and, making someone do something that they did not want to do. Higher values on this scale are indicative of more frequent engagement in these bullying behaviors over the last thirty days. The Cronbach's alpha for this scale is .92.

*Perceptions of Others' Beliefs about Bullying:* In order to compare students own beliefs about bullying with their perceptions of their peers' beliefs about bullying, the respondents were asked four questions designed to measure how strongly they believed that other students would agree with statements about bullying behavior. As with the individual beliefs about the bullying scale, these four statements included: teaching in a mean way; shoving, kicking, etc., threatening to hit others;

and, trying to be friendly with people who are different. Students indicated whether they thought their peers would agree with the statement using a four-point scale of Strongly Agree (1) to Strongly Disagree (4). The last item was recoded to stay consistent with the scale coding. The Cronbach's alpha for this scale is .85. Overall, these scales are reliably capturing the concepts being evaluated by the social norms campaign. Further, by continuing to assess outcomes with the same scales as in prior years, this data can be utilized to provide an analysis of trends, which is provided in Part II.

In addition to the scales, there is an assortment of independent variables available for inclusion in this study to account for differences in the outcomes. Individual measures included the age of the student, race (white versus non-white), gender (male versus female) and their self-reported average grade or letter grade. There were also a number of the school level measures (e.g., average class size and school mobility rate) obtained from the New Jersey Department of Education and three individual survey responses were aggregated to provide an overall school proportion. While not all variables were included in the final analysis, the reader may find these descriptives of interest in providing an overview of the measures considered. See Table 3.

**Table 3: Bullying Descriptives: School Level/Aggregated Measures**

	<b>N<sup>14</sup></b>	<b>Range</b>	<b>Mean (SD)</b>
<b>School Level Variables</b>			
School Size	15	68.00 to 1204.00	477.40 (332.61)
Average Class Size	12	14.00 to 23.70	20.56 (2.74)
School Mobility Rate	12	2.10 to 32.40	13.03 (10.61)
IEP Rate	12	11.10 to 24.70	16.59 (3.99)
Non-Attendance Rate	12	3.10 to 6.30	5.09 (1.03 )
Suspension Rate	12	1.30 to 36.90	12.33 (10.59)
Percent Subsidized Lunch	14	0.00 to 89.84	23.08 (28.13)
Race – Percent Black	15	0.00 to 52.11	17.22 (18.63 )
Gender – Percent Male	15	40.00 to 82.35	50.63 (10.18 )
<b>Aggregated School Variables</b>			
Average Level “I Feel Safe”	15	6.12 to 8.37	7.58 (.63)
Proportion Reporting Victimization Prior 30 days	15	.67 to .92	.81 (.06)
Proportion Self-Reporting Bullying Behaviors Prior 30 days	15	.49 to .80	.64 (.09)

*Sample*

A total of 15 schools participated in middle school survey. Surveys were administered to 3,501 students. Table 4 shows the demographic results for the entire middle school sample. The age range for respondents was between nine and twenty years old, with an average age of almost 13 years old (12.38). Students in grades six through eight were surveyed and the average grade level was seventh grade (6.87). The sample was almost 6.7% African-American and just under half of the students who participated were male.

---

<sup>14</sup> We were unable to locate data for two of the middle schools.

**Table 4: Demographic Characteristics for Middle School Sample – Full Sample**

<b>Overall Sample</b>		
<b>Fall 2007/Winter 2008</b>		
N (3501)		
	<i>Average</i>	<i>N</i>
<b>Age</b>	$\mu = 12.38$	3430
<b>Grade Level</b>	$\mu = 6.87$	3439
	<i>Percent</i>	<i>N</i>
<b>Percent Black</b>	6.7	3163
<b>Percent Male</b>	47.3	3424

Table 5 provides an additional view of the data by looking at several key demographic and items by cohort. Cohort 1 schools (N=2176) are those that have been in the social norms project for more than one year, while Cohort 2 schools (N=1260) are new to the program this year. There are significant differences between Cohort 1 and Cohort 2 schools – Cohort 2 schools are younger (12.13 years old compared to 12.53 years old in Cohort 1 ( $p < .01$ )), they receive higher grades than Cohort 1 students (3.28 on average compared to 3.21 ( $p < .05$ )), and feel less safe at school (on a scale of 1 to 10, Cohort 2 students report an average safety rating of 7.73 compared to 7.76 of Cohort 1 students. While Cohort 2 does not differ from Cohort 1 when the proportion of white students is examined, there appear to be shifts in the demographic profile of cohort 2 respondents. Cohort 2 students self-identify more frequently as black (5.8% of the Cohort 1 sample identified as black, where as 8.5% do so in Cohort 2; further this shift is occurring most often with students of Asian descent – 6.7% of Cohort 1 students were Asian compared to 1.9% in Cohort 2.<sup>15</sup>

While these demographic and performance indicators are interesting, what is consistent to the social norms campaign approach is that those in Cohort 2 report they are significantly more likely to having been a victim of a bully in the prior 30 days (.81 compared to .78 of Cohort 1

---

<sup>15</sup> Results not shown but are available upon request. These differences in race may also be attributed to the missing data on this variable for four middle schools – particularly if the schools that were excluded were heavily populated by Asian Americans.

students ( $p < .05$ ), are proportionately more likely to bully another in that same time frame (.64 vs. .59  $p < .001$ ), and are more likely to report having ‘felt’ bullied in the past year (.93 vs. .81 ( $p < .001$ )). Therefore, these cohort 2 students, who have not yet been exposed to the campaign, exhibit higher rates of bullying behaviors and victimization than those who are in schools where the campaign has been instituted for at least one year. While this finding does not rise to the level of assuming causality, it is notable.

**Table 5: Demographic Descriptives by Cohort**

	<b>Range</b>	<b>Total (N=3501)</b>	<b>Cohort 1 (N=2176)</b>	<b>Cohort 2 (N=1260)</b>
		Mean (SD)	Mean (SD)	Mean (SD)
<b>Age</b>				
Range		9 to 20	9 to 20	10 to 16
Mean (SD)		12.38 (1.45)	12.53 (1.56)	12.13**(1.19)
<b>Race</b>		N=3163	N=2161	N=1002
Proportion White	0 to 1	.66 (.48)	.66 (.47)	.64 (.48)
<b>Gender - Proportion Male</b>	0 to 1	.47 (.50)	.49 (.50)	.45 (.50)
<b>Letter Grade most often receive</b>	0 to 4	3.23 (.85)	3.21 (.90)	3.28* (.76)
<b>Grade Level</b>				
Range		5.6 to 12	6 to 12	5.6 to 8
Mean (SD)		6.87 (1.01)	7.01 (1.02)	6.63 (.94)
<b>How Safe do you feel at school?</b>	1 to 10	7.75 (2.22)	7.76 (2.26)	7.73* (2.15)
<b>Bully Behaviors</b>				
Proportion Victim Prior 30 days	0 to 1	.79 (.41)	.78 (.42)	.81* (.39)
Proportion Bullied Another Prior 30 days	0 to 1	.61 (.49)	.59 (.49)	.64** (.48)
Felt Bullied in the past school year	0 to 3	.85 (.97)	.81 (.963)	.93** (.98)

\*\* $p < .01$  \*  $p < .05$

The next step is to ascertain if those in this sample of students are representative of their school overall. This is discussed below with related data provided in Table 6. Table 6 shows the demographic characteristics for each of the individual schools including age, grade level, percent Black, percent male and percent of those surveyed within the school. The shaded columns of Table 6 provide the school level summary measures by school for percent Black and percent male to



allow for a comparison to ascertain if those respondents who took the survey were representative of those in the school generally.

As Table 6 indicates, on average 45% of school populations were surveyed, although this varied greatly from a low of 11.4% at MS-Q to a high of 87.9 at MS-I. The average age and grade level was consistent across samples with the exception of MS-L, whose students were between 5<sup>th</sup> and 6<sup>th</sup> grades and averaged 11 years old. Looking to both the survey and the school level characteristics there is great variation in the percentage of black students who attend these schools and whom took the survey. The percentages range from 0 to 2.3% to 50% and this appears generally reflective of the school population, but in fact, paired t-tests between the percent black students surveyed versus percent black in the student population indicate that the proportion of black students surveyed is **not** representative of the student body, for any school. Likewise, the proportion of male students who took the survey appears generally similar between schools, but there were significant differences in the proportion of male students who took the survey versus the proportion of males who attend each school. While these differences are significant, the degree of difference is, in most cases, not large. For instance, in School MS-C the difference is very small – 44.3% males surveyed versus 43.3% in the male population. However, one way to eliminate this particular bias challenge is to randomly assign students to complete the survey. Given that students must have the consent of their parents to participate, there is a natural selection effect at the outset (e.g., children who come from families where their parent would consent may be different from children whose parents do not agree for them to participate.) The only way to overcome this difficulty is to randomly assign students to complete the survey from the pool of those who have consent, so that some children complete the survey and some do not. However this would require a much larger pool from which to assign students to the survey or non-survey conditions, particularly in those schools with fewer respondents. Thus the differences between the sample population and

the school population are noted as a limitation to these results and to the conclusions one may draw from the middle schools involved in the bully campaigns.

**Table 6: Demographic Characteristics for Middle School Sample – Individual Schools**

School	<i>Demographics of Respondents Surveyed by School</i>							<i>School Level Descriptives</i>	
	<i>N</i>	<i>Age</i>	<i>Grade</i>	<i>% Black</i>	<i>% Male</i>	<i>% Surveyed</i>	<i>% Black</i>	<i>% Male</i>	
MS-A	138	12.33	6.8	12.3% **	50.7% *	27.8%	18.3%	50.2%	
MS-C	225	12.25	7.0	2.3% **	44.3% **	62.8%	2.0%	43.3%	
MS-G	10	12.10	6.9	50.0% **	70.0% **	14.7%	50.0%	82.4%	
MS-H	784	12.75	7.1	4.2% **	48.2% **	84.4%	1.5%	54.1%	
MS-E	799	12.40	7.0	6.5% **	48.4% **	66.4%	6.9%	50.4%	
MS-I	268	12.59	7.0	6.4% **	52.4% **	87.9%	6.2%	53.8%	
MS-J	34	13.00	7.4	N/A	34.4% **	14.8%	45.4%	43.7%	
MS-L	390	10.99	5.6	2.9% **	46.1% **	51.1%	2.2%	43.8%	
MS-M	217	12.44	7.0	3.3% **	47.9% **	48.5%	4.3%	54.8%	
MS-O	100	12.58	7.1	0.0% **	49.0% **	58.8%	0.0%	57.1%	
MS-P	32	13.07	7.4	N/A	44.8% **	20.6%	17.4%	40.0%	
MS-Q	91	12.60	7.0	N/A	40.0% **	11.4%	16.2%	50.4%	
MS-S	123	12.39	6.9	49.6% **	48.0% **	86.6%	52.1%	47.2%	
MS-U	189	13.09	7.5	3.3% **	39.8% **	27.6%	4.2%	45.9%	
MS-V	101	12.30	6.8	N/A	45.0% **	24.5%	31.6%	42.5%	
Total	3501	12.39	6.9	6.7% **	47.3% **	45.9%	17.22%	50.6%	

N/A=Schools missing race data

\*\*p<.01 \*p<.05

### *Method of Analysis*

The appropriate method of analysis to determine the relationship between these individual and school characteristics on the outcomes of bullying behaviors is Ordinary Least Squares (OLS) multiple regression. This type of regression is advantageous due to the ability of the model to combine a number of different variables and assign a relative and unique weight to each so that the effects of the independent variables on the dependent variable allows for the “unique contribution” of each (Allison, 1999, p. 3). OLS regression is an iterative process based on observed data that seeks to find the coefficients which provide the “smallest sum of squared errors” -- resulting in the

best and least biased linear prediction of the dependent variable (Allison, 1999, 12). The survey findings presented below were determined using OLS regression while controlling for clustering. The model controlled for clustering as means to control for between school level differences. This is necessary because the students are grouped within the 15 middle schools and when this occurs, it is more likely that two individuals in the same school may be more alike than two individuals from a different school. While the value of the beta coefficient remains the same, failure to control for clustering can result in biased standard errors, asserting a significant finding when there is none (or a weaker relationship that is evidenced when you do not account for this grouping).<sup>16</sup>

The analysis on the scale outcomes included four different models. The first model included the full sample and individual characteristics of age, white (or non-white), letter grade most often received and male (or female). Given the diversity of these different schools in terms of population size (ranging from 68 to 1024), school size was included in the analysis as a control for differences between the schools. In addition, an individual level measure of the respondent's perception of being a victim of bullying at least once during the school year "Felt Bullied" (coded as 1 for yes and 0 for no) was included in all of the models. Finally, a second school level variable – the aggregated mean value of the variable "I feel safe" (coded on a scale of 1 to 10 with higher values indicating feeling more safe in school). The second model contains the items of the first model, but drops the race variable. The third and fourth models provide a comparison between Cohorts 1 and 2 on the models explored in the third model. To summarize, the four models explored in Part I are:

- Model 1: Age, Male, Letter Grade, White, Felt Bullied, Safe School, School Size, Outcomes both cohorts
- Model 2: Age, Male, Letter Grade, Felt Bullied, Safe School, School Size, Outcomes , both cohorts

---

<sup>16</sup> An alternative way of controlling for these groupings are to employ dummy (0, 1) variables for each school. This was explored, but found that both school level variables and a number of the school dummy variables were dropped from the model. Given the results were substantively the same, the cluster option was selected.

- Model 3: Age, Male, Letter Grade, Felt Bullied, Safe School, School Size, Outcomes, Cohort 1 only
- Model 4: Age, Male, Letter Grade, Felt Bullied, Safe School, School Size, Outcomes, Cohort 2 only

## ***Regression Results***

The outcomes explored are the scales and a single item of “I feel safe”, organized by three broad categories: school and classroom environment; self-reported behaviors and beliefs (victimization, bullying others and beliefs about bullying); and, perceptions of others behaviors and beliefs (victimization, bullying behaviors and beliefs about bullying). In general, these results are compared to the findings of Connell, et al. 2007 and Flower (2007), as both found similar patterns in these outcomes in their analyses of the impact of exposure to the social norms campaign on outcomes (Connell, et al. 2007b) and while accounting for differences between the schools measured with a macro-level poverty scale (Flower, 2007).

While some of the findings across outcomes differ, there are commonalities. For example, both studies report that younger students are significantly more likely to view the school environment more positively and that older students are more likely to bully others, to believe that bullying behaviors are acceptable, and to perceive that others are likeminded in both their bullying behaviors and beliefs. Additionally, non-white students are more likely to report they are victims of bullying.<sup>17</sup> With respect to gender, male students are less likely to view the school environment as positive, and boys are also more likely to report engaging in bullying behaviors and are more likely to be accepting of bullying behaviors. Finally, Flower (2007) also reported scholastic performance and found that across all outcomes, being a good student is significantly related to bullying behaviors,

---

<sup>17</sup> As noted in footnote 8, four of the middle schools in Cohort 2 did not have the respondent’s race as the variable was omitted by Dr. Perkins prior to submission of the data to CAS. Consequently, the ability to discuss the race relationship on outcomes is limited for the examination of the cohort 1 versus cohort 2 schools.

beliefs, and related peer perceptions. Students who receive a higher grade are more likely to positively view the school environment and to feel safer in school; they are less likely to be either a victim or a perpetrator of bullying; and, they are less likely to hold that bullying behaviors are acceptable. Likewise, kids who perform better in school perceive others as they perceive themselves – they are less likely to perceive their peers as victims or perpetrators of bullying, and are less likely to think that their peers have pro-bullying attitudes.

The models explored in this report differ somewhat from the Connell, et al. (2007b) and Flower (2007) analyses in the precise measures incorporated; nonetheless, the findings of the prior studies indicating differences in age, gender, race and school performance on bullying behaviors and perceptions provides a context to discuss the results in the current analysis, which follow.<sup>18</sup>

### *School and Classroom Environment*

As indicated in Tables 7 and 8, the current year survey results are consistent across all four models (with two exceptions to be discussed below) and with prior year results, with some interesting additional details. In the full sample, younger students are more likely to view both the school as safe and the classroom as positive; as do students who perform well in school. However, in the cohort comparisons, younger respondents in Cohort 1 are significantly more likely to view the school as safe than students in Cohort 2. While girls are significantly more likely than boys ( $p < .05$ ) to have a positive view of the school overall, there are gender differences between the cohorts. Girls in Cohort 2 are significantly more likely than boys in Cohort 2 ( $p < .05$ ) to have a positive view of the school, while in Cohort 1 where gender is not a significant factor.

Observing again the models for both school environment and feeling safe in school across the different samples, note that the addition of the variable ‘felt bullied’ is significant throughout.

---

<sup>18</sup> Unless otherwise noted, all reported findings are significant at  $p < .01$ .

Students who report having felt bullied in the school year have a more negative view of both school safety and school environment. Likewise, the aggregated ‘safe school’ variable is consistently significant across samples and models for both outcomes – those attending schools with higher overall values on students feeling safe in school view the school environment more positively and feel safer in school on an individual basis.

**Table 7: Bullying Results - School Environment**

	<b>(Model 1)</b> <b>Both Cohorts</b> <b>School</b> <b>Environment</b>	<b>(Model 2)</b> <b>Both Cohorts</b> <b>School</b> <b>Environment</b>	<b>(Model 3)</b> <b>Cohort 1</b> <b>School</b> <b>Environment</b>	<b>(Model 4)</b> <b>Cohort 2</b> <b>School</b> <b>Environment</b>
<b>Age</b>	-0.040 (4.27)**	-0.042 (4.84)**	-0.036 (3.51)*	-0.056 (4.32)**
<b>Male</b>	-0.039 (2.39)*	-0.039 (2.64)*	-0.029 (1.27)	-0.050 (2.53)*
<b>Letter Grade</b>	0.152 (7.60)**	0.148 (6.74)**	0.170 (7.82)**	0.100 (4.42)**
<b>White</b>	0.038 (1.27)			
<b>Felt Bullied</b>	-0.217 (14.31)**	-0.219 (14.72)**	-0.238 (25.59)**	-0.185 (7.36)**
<b>Safe School</b>	0.123 (5.56)**	0.114 (7.31)**	0.125 (5.09)**	0.101 (10.98)**
<b>School Size</b>	0.000 (2.04)	0.000 (2.46)*	0.000 (0.48)	0.000 (2.15)
<b>Constant</b>	2.155 (9.24)**	2.276 (10.36)**	2.083 (7.31)**	2.668 (10.85)**
<b>Observations</b>	3045	3305	2089	1216
<b>R-squared</b>	0.19	0.19	0.22	0.15

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

**Table 8: Bullying Results – Feeling Safe in School**

	(Model 1) Both Cohorts Feel Safe in School	(Model 2) Both Cohorts Feel Safe in School	(Model 3) Cohort 1 Feel Safe in School	(Model 4) Cohort 2 Feel Safe in School
Age	-0.159 (3.92)**	-0.159 (3.87)**	-0.186 (5.23)**	-0.066 (0.83)
Male	0.043 (0.76)	0.041 (0.81)	0.033 (0.48)	0.057 (0.61)
Letter Grade	0.571 (3.94)**	0.566 (3.69)**	0.664 (3.59)*	0.319 (3.97)**
White	0.143 (0.82)			
Felt Bullied	-1.211 (14.59)**	-1.215 (15.33)**	-1.149 (20.13)**	-1.292 (7.02)**
Safe School	0.695 (10.48)**	0.715 (10.18)**	0.721 (41.04)**	0.803 (9.11)**
School Size	-0.000 (0.64)	-0.000 (0.33)	-0.000 (0.98)	0.000 (0.15)
Constant	3.054 (5.95)**	2.981 (5.14)**	2.983 (4.28)**	1.955 (1.36)
Observations	3072	3335	2107	1228
R-squared	0.18	0.19	0.21	0.16

Robust t statistics in parentheses

\*p&lt;.05 \*\*p&lt;.01

*Self-Reported Victimization, Bullying Behavior, and Beliefs about Bullying*

Consistent with the prior year findings, non-white students report being victimized more often than white students<sup>19</sup> and students who perform well in school are significantly less likely to be the victim of a bully (Table 9). Other significant findings in the victimization measure include the positive and significant association between those who report they are victims of bullying behaviors and those who report feeling that they have been bullied in the past year. The only cohort differences of note is in Cohort 2 whereby younger students report being the victim of a bully and

<sup>19</sup> Interesting to note that this is the only model among all outcomes where race is significant. It is possible that the other variables in the model encapsulate the race effect, or there are differences by cohort that cannot be examined due to the missing race variables for four of the Cohort 2 schools. It also may be that the racial diversity of the schools overall may, in part, be controlled by accounting for group association in the cluster analysis.

the finding in the school level “safe school’ variable indicating that students who are in schools with lower overall ratings of safety are more likely to be victimized.

**Table 9: Bullying Results – Self-Reported Victimization**

	(Model 1) Both Cohorts Victim of Bullying	(Model 2) Both Cohorts Victim of Bullying	(Model 3) Cohort 1 Victim of Bullying	(Model 4) Cohort 2 Victim of Bullying
Age	-0.010 (0.47)	-0.013 (0.56)	0.006 (0.40)	-0.069 (4.70)**
Male	0.015 (0.97)	0.031 (1.69)	0.022 (1.21)	0.051 (1.29)
Letter Grade	-0.158 (4.74)**	-0.166 (5.19)**	-0.183 (4.89)**	-0.120 (6.64)**
White	-0.090 (2.88)*			
Felt Bullied	0.589 (24.97)**	0.586 (26.07)**	0.562 (43.25)**	0.610 (13.35)**
Safe School	-0.047 (0.95)	-0.077 (1.87)	-0.090 (2.26)	-0.103 (3.91)**
School Size	0.000 (0.23)	-0.000 (0.43)	0.000 (0.31)	-0.000 (1.03)
Constant	1.384 (3.02)*	1.627 (3.80)**	1.536 (4.20)**	2.390 (6.77)**
Observations	2954	3202	2034	1168
R-squared	0.23	0.23	0.24	0.23

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

Turning to Tables 10 and 11, note that there is general consistency across all four models with respect to the survey outcomes explored in 2007 – older students remain more likely to bully others are more likely to see bullying as acceptable. Likewise, students who receive better grades are less likely to bully others and to view bullying behaviors as positive. Differences from prior years in



these data include that males were more likely to engage in bullying behaviors; however this is not this relationship is not sustained within the current results (Table 10).<sup>20</sup>

There are several new findings with the inclusion of the felt bullied, school safe and school size variables. First, those who report having felt bullied are significantly more likely to bully others (Table 10). Second, those in schools viewed as safer overall are less likely to bully others, although this trend does not hold for Cohort 2 respondents, where the aggregated level school safety (“I feel safe”) is no longer significant (See Table 10). Third, similarly, students in schools viewed as safer are less likely to view bullying behaviors as acceptable (Table 11). Fourth, students in bigger schools, for the entire sample and Cohort 1 sample, are more likely to find bullying behaviors acceptable than students in smaller schools, although the difference is small ( $p < .05$ ) (Table 11).

---

<sup>20</sup> It is possible that as boys are more likely to engage in bullying behaviors overall, and seeing the positive relationship between those who felt bullied also more likely to bully others, that gender lost significance when all of these variables were included in the model. However, variation inflation factor and tolerance diagnostics did not indicate a problem.

**Table 10: Bullying Results – Self-Reported Bullying Others**

	(Model 1) Both Cohorts Self-Reported Bullying	(Model 2) Both Cohorts Self-Reported Bullying	(Model 3) Cohort 1 Self-Reported Bullying	(Model 4) Cohort 2 Self-Reported Bullying
Age	0.041 (5.35)**	0.045 (6.23)**	0.039 (4.10)**	0.054 (3.38)**
Male	0.011 (0.69)	0.015 (1.02)	-0.000 (0.02)	0.032 (0.86)
Letter Grade	-0.166 (3.84)**	-0.171 (4.14)**	-0.196 (3.78)*	-0.123 (5.57)**
White	-0.077 (2.09)			
Felt Bullied	0.176 (8.62)**	0.164 (8.20)**	0.174 (6.18)**	0.149 (5.73)**
Safe School	-0.104 (3.20)**	-0.065 (1.99)	-0.136 (7.17)**	0.006 (0.11)
School Size	-0.000 (0.90)	-0.000 (0.73)	0.000 (1.06)	-0.000 (1.25)
Constant	1.181 (3.19)**	0.796 (2.34)*	1.433 (5.79)**	0.068 (0.15)
Observations	2918	3164	2007	1157
R-squared	0.15	0.14	0.18	0.10

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

**Table 11: Bullying Results – Self-Reported Beliefs about Bullying**

	(Model 1) Both Cohorts Self-Reported Beliefs about Bullying	(Model 2) Both Cohorts Self-Reported Beliefs about Bullying	(Model 3) Cohort 1 Self-Reported Beliefs about Bullying	(Model 4) Cohort 2 Self-Reported Beliefs about Bullying
Age	0.077 (6.53)**	0.081 (7.35)**	0.072 (4.65)**	0.098 (6.49)**
Male	0.063 (3.48)**	0.059 (3.44)**	0.052 (4.44)**	0.055 (1.22)
Letter Grade	-0.155 (3.48)**	-0.153 (3.50)**	-0.195 (4.19)**	-0.060 (3.43)**
White	-0.032 (0.93)			
Felt Bullied	0.033 (0.95)	0.029 (0.90)	0.058 (1.37)	-0.015 (0.58)
Safe School	-0.104 (5.84)**	-0.027 (0.61)	-0.112 (7.47)**	0.046 (2.16)
School Size	0.000 (2.76)*	0.000 (2.06)	0.000 (4.57)**	-0.000 (0.89)
Constant	1.701 (5.70)**	1.018 (2.03)	1.889 (5.73)**	0.038 (0.12)
Observations	3054	3315	2094	1221
R-squared	0.13	0.12	0.16	0.07

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

*Perceptions of Others' Victimization, Bullying Behaviors, and Beliefs about Bullying*

Overall, perceptions regarding the degree to which others are victimized are influenced by gender, age, and scholastic performance (Table 12). Female students and older students are more likely to see others' victimization in the full sample (Cohort 2 now at  $p < .05$ ); however, age is no longer significant in the cohort specific analysis. Only older students in Cohort 2 that report higher perceptions of others' victimization; Cohort 1 students do not differ by age on this measure. With regard to grades, students who performed better in school were less likely to report perceptions of other's victimization ( $p < .05$ ) but again, this differs by cohort. Performance in school for those in Cohort 2 is no longer a significant factor on this measure. This may be the result of the differences between the Cohort 1 and Cohort 2 samples on this measure. More previously noted in the

discussion of the sample, students in Cohort 2 reported significantly higher grades than those students in Cohort 1. However, of particular note is the standard deviations of .90 for Cohort 1 and .76 for Cohort 2 indicating there is less variation in school performance reported by respondents in Cohort 2. Thus the Cohort 2 sample, en total, is more similar on this measure than the students in Cohort 1.

Finally, there is a cohort difference in the aggregated variable of feeling safe in school on perceptions of victimization – Cohort 2 students in schools viewed are safer overall are significantly less likely to perceive victimization of others. This is consistent with other findings related to schools viewed as safer.

**Table 12: Bullying Results – Perceptions of Others’ Victimization**

	(Model 1) Both Cohorts Perception of Others’ Victimization	(Model 2) Both Cohorts Perception of Others’ Victimization	(Model 3) Cohort 1 Perception of Others’ Victimization	(Model 4) Cohort 2 Perception of Others’ Victimization
Age	0.058 (2.50)*	0.050 (2.37)*	0.047 (1.87)	0.078 (4.21)**
Male	-0.122 (5.66)**	-0.123 (5.59)**	-0.130 (4.20)**	-0.103 (3.24)*
Letter Grade	-0.085 (2.31)*	-0.091 (2.50)*	-0.132 (3.69)*	-0.001 (0.02)
White	-0.065 (1.89)			
Felt Bullied	0.297 (6.18)**	0.311 (7.09)**	0.297 (4.42)**	0.310 (6.15)**
Safe School	0.107 (0.72)	-0.063 (0.45)	0.105 (0.66)	-0.198 (6.09)**
School Size	-0.000 (0.47)	-0.000 (0.74)	-0.000 (0.13)	0.000 (1.27)
Constant	0.182 (0.15)	1.636 (1.42)	0.403 (0.28)	1.951 (4.63)**
Observations	2959	3208	2035	1173
R-squared	0.06	0.07	0.07	0.08

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

Tables 13 and 14 explore the view of students on others' bullying behaviors and others' beliefs on bullying. While these results are consistent with the general theme found in these data reported above (e.g., male students and students who are bullied themselves are more likely to perceive that students are bullying others (Table 13); however some of findings exhibit cohort differences. For instance, perceptions of others' bullying behaviors is influenced by age of the Cohort 2 respondent (older students perceive others' bully more); by scholastic performance (no longer significant with Cohort 2, whereas in Cohort 1 students who performed better were less likely to perceive bullying behaviors by others); and school safety (those in schools that were viewed as less safe were more likely to perceive bullying).

Perceptions of others' beliefs about bullying are likewise consistent – those who feel bullied themselves are more likely to think that others view bullying behaviors as acceptable (Table 14). In addition, two of the three cohort differences with respect to perceptions of others' bullying behaviors are substantively similar to the perceptions of others' beliefs scale. Scholastic performance is again not a significant factor with Cohort 2, whereas in Cohort 1 students who performed better were less likely to perceive bullying behaviors by others ( $p < .05$ ). Finally, students in Cohort 2 schools that were viewed as less safe were more likely to perceive others as having attitudes that favor bullying behaviors as acceptable; this was not a significant factor in Cohort 1 schools.

**Table 13: Bullying Results – Perceptions of Others’ Bullying Behavior**

	(Model 1) Both Cohorts Perception of Others’ Bullying	(Model 2) Both Cohorts Perception of Others’ Bullying	(Model 3) Cohort 1 Perception of Others’ Bullying	(Model 4) Cohort 2 Perception of Others’ Bullying
Age	0.048 (1.81)	0.040 (1.71)	0.032 (1.19)	0.081 (8.31)**
Male	-0.121 (5.92)**	-0.125 (6.58)**	-0.121 (4.95)**	-0.120 (2.89)*
Letter Grade	-0.100 (3.25)**	-0.104 (3.23)**	-0.156 (5.28)**	0.010 (0.30)
White	-0.085 (2.12)			
Felt Bullied	0.329 (8.55)**	0.344 (9.85)**	0.320 (6.19)**	0.354 (6.12)**
Safe School	0.130 (0.71)	-0.077 (0.46)	0.138 (0.72)	-0.234 (4.39)**
School Size	-0.000 (0.64)	-0.000 (0.83)	-0.000 (0.09)	0.000 (0.53)
Constant	0.034 (0.02)	1.741 (1.27)	0.207 (0.12)	2.028 (4.51)**
Observations	2970	3229	2038	1191
R-squared	0.07	0.07	0.07	0.09

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

**Table 14: Bullying Results – Perceptions of Others’ Beliefs about Bullying**

	(Model 1) Both Cohorts Perceptions of Others’ Beliefs about Bullying	(Model 2) Both Cohorts Perceptions of Others’ Beliefs about Bullying	(Model 3) Cohort 1 Perceptions of Others’ Beliefs about Bullying	(Model 4) Cohort 2 Perceptions of Others’ Beliefs about Bullying
<b>Age</b>	0.063 (5.10)**	0.065 (5.76)**	0.057 (3.98)*	0.091 (5.36)**
<b>Male</b>	-0.022 (1.00)	-0.025 (1.15)	-0.040 (2.40)	0.001 (0.02)
<b>Letter Grade</b>	-0.094 (2.19)	-0.085 (1.83)	-0.135 (3.09)*	0.029 (0.92)
<b>White</b>	-0.042 (1.40)			
<b>Felt Bullied</b>	0.151 (4.27)**	0.155 (4.46)**	0.148 (2.88)*	0.155 (4.00)**
<b>Safe School</b>	-0.076 (0.68)	-0.133 (1.66)	-0.062 (0.62)	-0.182 (4.61)**
<b>School Size</b>	-0.000 (0.05)	-0.000 (0.61)	0.000 (0.33)	-0.000 (0.26)
<b>Constant</b>	1.924 (2.22)	2.322 (4.03)**	1.942 (2.28)	2.036 (4.77)**
<b>Observations</b>	2988	3244	2053	1191
<b>R-squared</b>	0.06	0.07	0.08	0.07

Robust t statistics in parentheses  
\*p<.05 \*\*p<.01

Stepping back from the myriad of tables and findings, these data generally affirm and build upon the patterns established in the studies from 2007. First, feeling safe and feeling bullied are not complementary; they do not co-exist very well – at least in these data. The results indicate that students who feel bullied are more likely to bully others, and those who view school as a safer place are less likely to bully others. Further, students in schools that are considered safe overall are less likely to perceive that others were victims of bullies. Finally, larger schools are also less likely to have a school environment where feel safe – one finding indicated that youth in larger schools are more likely to perceive that others view bullying behaviors as acceptable.

## ***Part II: Middle Schools: Longitudinal Cohort 1 Analysis***

Of the fifteen middle schools that implemented the social norms campaign during the 2007-2008 school years, six of the schools had previously participated during the 2006-2007 school year. These six schools collectively are referred to as Cohort 1. By virtue of having been a part of the New Jersey Department of Education and the Center for Addiction Studies social norms campaign, these six schools have collected survey information from students at three different time periods. The first survey was administered during the Fall 2006 semester, the second during the Spring 2007 semester, and the third during the Fall 2007 semester. At each time, students took the social norms campaign survey described in Part I (see also Appendix C). As a result of repeated survey administration, three panels of data are now available for analysis and evaluation.

The current section analyzes the results of the social norms campaign in light of the fact that three data points are available. While the three data points do not necessarily include information from the same set of students at each time, the availability of repeated measures does allow for an examination of whether the implementation of the social norms campaign in these six schools has caused a decrease in both students' behaviors and their perceptions of others' behaviors. The analyses reported here utilized independent samples t-tests to determine differences in scales and behavioral outcomes between time periods and ordinary least squares regression to determine the impact of campaign exposure on outcomes of the most recent survey administration.

### *Sample*

Six middle schools administered surveys to students at three separate time periods. Of the middle schools involved, three initially surveyed students in the Spring 2006 semester.<sup>21</sup> The remaining three schools initially surveyed students in the Fall 2006 semester. For the ease of

---

<sup>21</sup> Schools MS-C, MS-H, and MS-I all surveyed during Spring 2006.



reporting, these two survey administrations are combined into Time 1. All of the schools administered the survey for the second time during the Spring 2007 semester; this will be referred to as Time 2 in the remaining report. The final, and most recent administration, happened during the end of the Fall 2007 semester, with two exceptions.<sup>22</sup> All surveys during Time 3 were completed by the end of winter 2008. Results pertaining to all schools who collected survey data during Times 1 and 2 are available in reports for the previous year (see Connell, et al. 2007a; Connell, et al., 2007b; and, Flower 2007). For the purposes of these analyses, only those six schools that collected data at all three time periods will be examined.

The most recent administration, Time 3, was also the largest, with 2,224 students completing surveys. Table 15 shows the demographic characteristics for the students in all three of the time periods involved. Analyses were conducted to examine for differences in demographic characteristics between time periods. Independent samples t-tests confirmed expected school based trends: students were older in the Time 2 sample than they were in both the Time 1 and Time 3 samples ( $T1/T3: p < .05^{23}$ ).<sup>24</sup> This most likely reflects the fact that students are older in the spring than they are in the fall; as the school year continues, students get older. What is less clear, however, were findings that suggested that students were in higher grades at Time 3 than they were at Times 1 and 2 (there was no significant differences in grade between Times 1 and 2). One potential explanation is that the sample in Time 3 may have included students who remembered taking the survey during the previous school year; this could have increased their willingness to return the consent forms and take the survey again. This hypothesis cannot be tested, as matched samples

---

<sup>22</sup> MS-A actually surveyed when school reconvened in the Spring semester, but less than one month after the other schools. MS-I also surveyed in the spring semester, due to an issue with teacher contracts. Because the following models control for school, these time differences are taken into account.

<sup>23</sup> For the ease of reporting, when reporting differences between time periods, only the significance level for the differences between Time 1 and Time 3 will be reported, unless there is a statistical reason to report a different finding. The results are consistent in that the differences between Times 1 and 3 are reflective of the overall trends in the data.

<sup>24</sup> Tables and related analysis are available from the authors for all independent samples t-tests conducted to look at differences in demographic characteristics between time periods. These tables were omitted for ease of reporting and interpretation.

were not used and it is unknown which students, if any, took the survey during multiple time periods.

T-tests also confirmed that the sample was significantly more diverse at Times 2 and 3 when compared to Time 1. The percentage of white students significantly decreased in both the second and third administrations of the survey. There are many potential reasons for this; one is that the schools, after analysis of the first report, increased their recruitment of minority students to complete the survey. Given the importance of a representative sample for creating social norms campaign messages, it is very likely that schools actively targeted specific groups of students. It is also possible that the ethnic composition of the schools changed significantly during the two years that the survey was administered. Preliminary data from the New Jersey Department of Education does not suggest this is the case; however, a more thorough analysis can be made once the collection of demographic information for the 2007-2008 school years is completed.

**Table 15: Demographic Characteristics for Middle School Sample – Cohort 1/Time 3**

	<b>Time 1 Spring/Fall 2006</b>		<b>Time 2 Spring 2007</b>		<b>Time 3 Fall 2007</b>	
	N (1742)		N (1956)		N (2224)	
	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>
<b>Age</b>	12.6 (1.00)	1697	12.7 (1.02)	1889	12.5 (1.56)	2170
<b>Grade</b>	6.9 (.82)	1696	6.9 (.80)	1881	7.0 (1.02)	2176
	<i>Percent (SD)</i>	<i>N</i>	<i>Percent (SD)</i>	<i>N</i>	<i>Percent (SD)</i>	<i>N</i>
<b>Percent White</b>	72.1 (.45)	1683	67.4 (.47)	1869	66.3 (.47)	2161
<b>Percent Male</b>	43.6 (.50)	1693	48.3 (.50)	1885	48.7 (.50)	2165

The demographic characteristics for each of the six middle schools in Cohort 1 were also examined separately. Table 16 shows the average age and grade of those students who completed the survey, as well as the gender and racial makeup of respondents. In general, these results are consistent with the Cohort trends described above; many of the schools increased the percentage of

Black respondents with time, which may have helped increase the diversity seen in the final Time 3 sample.

As is to be expected, the age and grade of students participating increased between Times 1 and 2, with Time 3 being more closely aligned with Time 1 than Time 2. As speculated earlier, this is most likely the result of the fact that students are older during the spring than they are during the fall semester. Schools also were generally consistent in the proportion of males who took the survey during each time.

It should also be noted that many of the schools managed not only to continue to administer surveys to a large percentage of its students, but they also were able to increase survey participation between time periods. Given the challenges that come from administering a survey like this to a student population, all of the schools involved should be commended for the work that they did in obtaining parental consent forms, scheduling surveys, and encouraging participation.

**Table 16: Demographic Characteristics for Middle School Sample by Time and School**

<b>2005-2006 School Year</b>				
<b>School</b>	<i>N</i>	<i>%</i>		
		<i>Black</i>	<i>% Male</i>	
MS-A	352	15.7	54.8	
MS-C	354	1.7	51.4	
MS-E	1216	5.8	52.1	
MS-G	68	N/A	N/A	
MS-H	952	1.6	49.7	
MS-I	325	4.9	58.2	

  

<b>Spring/Fall 2006</b>						
<b>School</b>	<i>N</i>	<i>%</i>		<i>Age</i>	<i>Grade</i>	<i>%</i>
		<i>Black</i>	<i>Male</i>			<i>Surveyed</i>
MS-A	118	9.8	46.0	11.7	6.6	33.5
MS-C	180	1.8	42.5	12.5	6.8	50.8
MS-E	578	2.7	45.3	12.7	6.9	47.5
MS-G	12	41.7	91.7	13.0	7.5	17.6
MS-H	759	1.5	46.8	12.8	7.0	79.7
MS-I	95	1.1	50.0	12.2	6.6	29.2

  

<b>Spring 2007</b>						
<b>School</b>	<i>N</i>	<i>%</i>		<i>Age</i>	<i>Grade</i>	<i>%</i>
		<i>Black</i>	<i>Male</i>			<i>Surveyed</i>
MS-A	114	10.6	45.6	12.2	6.5	32.4
MS-C	233	1.3	46.8	12.9	7.1	65.8
MS-E	705	6.2	47.4	12.8	7.0	58.0
MS-G	18	72.2	72.2	13.2	7.4	26.5
MS-H	607	2.8	45.6	12.7	6.9	63.8
MS-I	230	3.8	60.6	12	6.6	70.8

  

<b>Fall 2007</b>						
<b>School</b>	<i>N</i>	<i>%</i>		<i>Age</i>	<i>Grade</i>	<i>%</i>
		<i>Black</i>	<i>Male</i>			<i>Surveyed</i>
MS-A	138	12.3	50.7	12.3	6.8	27.8
MS-C	225	2.3	44.3	12.3	7.0	63.1
MS-E	799	6.5	48.4	12.4	7.0	66.4
MS-G	10	50.0	70.0	12.1	6.9	14.7
MS-H	784	4.2	48.2	12.8	7.1	84.4
MS-I	268	6.4	52.4	12.6	7.0	87.9

### *Method of Analysis*

Having data available for three different time periods offered a unique opportunity to look at the impact of the social norms campaign over two separate implementations and for more than one school year. One limitation, however, is that the students participating in each wave of the survey are not necessarily the same as those participating in the other waves. As such, each of the three time periods must be looked at independently of the others, allowing for the analysis of trends within schools but not allowing for the inference that the social norms campaign impacts individuals. All of the following analyses, therefore, are in terms of school trends and not individual causal mechanisms.

The analysis of school trends is undertaken using independent samples t-tests. By treating each of the waves as coming from separate groups of people, the independent samples t-tests test for differences between the means of the outcomes between the three time periods.<sup>25</sup> Both scale and behavioral outcomes are analyzed; this is especially important in light of the goal of a social norms campaign, which should bring perceptions in line with actual behaviors.

The analysis of the impact of campaign exposure on both scale and behavioral outcomes is undertaken using an Ordinary Least Squares regression model. As described in the previous section, the OLS model is ideal for measures with a continuous dependent variable; all models reported here fall into that category. It should be noted here that a decision was made to not include predictors from previous time periods in the model in light of the fact that it cannot be determined whether the samples include the same respondents and if so, what percentage of respondents. While it is possible to observe trends without having samples made up of the same respondents, the use of the OLS model assumes causality; to assume that the behavior of a potentially different set of students

---

<sup>25</sup> It is completely reasonable from a common sense perspective to assume that some of the same students are participating in multiple waves of the survey. However, because it is not possible to track these students between the waves, it is not possible to make the assumption statistically that they are the same. In order to reduce the bias and ensure the most conservative estimate of trends, all samples are assumed to be independent.

at a previous time impacts the behavior at the current time is statistically risky. Given that this is only the middle of a several year evaluation of the social norms campaign, it was determined that being conservative at this point in time was the most beneficial. Future evaluations will revisit the possibility of a several stage model that includes data from previous time periods. Future evaluations will also be able to examine these results using hierarchical modeling; currently, the small amount of schools involved in this analysis prohibits it.

The next section will detail both the changes in outcomes over time and the results of exposure on student behavior and beliefs.

### ***Differences Between Time Periods***

#### *Scale Outcomes*

As described in Part I of this chapter, seven scales were created using the data from the middle school survey (please see previous section for a detailed description). These scales serve to measure both student perceptions and student behaviors during the school year prior to survey administration. Individual scale statistics for each of the scales were calculated; from there, significance testing was undertaken to examine any differences that occurred between the three time periods. Table 17 reports the mean and Cronbach's alpha levels for each of the scales for all three waves of data collection.

**Table 17: Bullying Scale Outcomes, by Time Period**

Scale	Time 1 Spring/Fall 2006			Time 2 Spring 2007			Time 3 Fall 2007		
	N	Mean	Alpha	N	Mean	Alpha	N	Mean	Alpha
School Environment (higher values indicate positive climate)	1722	2.95	0.732	1937	2.98	0.749	2197	3.03	0.771
Personal Victimization (higher values indicate more victimization)	1669	0.67	0.828	1883	0.64	0.860	2136	0.63	0.850
Self-Reported Bullying Behavior (higher values indicate more bullying behavior)	1619	0.36	0.838	1842	0.37	0.893	2095	0.35	0.896
Beliefs about Bullying (lower values indicate more pro-social attitudes)	1704	1.44	0.842	1893	1.45	0.877	2182	1.43	0.888
Perceptions of Others' Victimization (higher values indicate high perceptions of peer victimization)	1669	1.63	0.870	1883	1.50	0.896	2130	1.44	0.888
Perceptions of Others' Bullying Behavior (higher values indicate high perceptions of peer bullying)	1659	1.45	0.910	1862	1.36	0.932	2130	1.26	0.923
Perceptions of Others' Beliefs about Bullying (lower values indicate more pro-social attitudes)	1650	1.97	0.855	1831	1.88	0.870	2132	1.84	0.858

Independent samples t-tests used to measure the differences between scale values at Times 1, 2, and 3 revealed two consistent patterns. The first was that student reports of school environment increased during each wave of data collection. While the magnitude of the difference was greatest between Times 1 and 3, the pattern was statistically significant during all three periods (T1/T3:  $p < .000$ ). This clearly indicates that the trend for Cohort 1 schools was for students to be more positive about their school environment as they continued implementation of the social norms campaign.

The other pattern was related to students' perceptions of others' experiences. At each time period, students reported lower levels of perceptions of others' victimization, others' bullying behaviors, and other' beliefs about bullying. These results were consistently significant (T1/T3:  $p < .000$  for all three variables). In this regard, it can be assumed that the social norms campaign is effectively informing students about the actual prevalence of certain behaviors in their schools; students therefore are reporting more realistic levels of their peers' behaviors.

Self-reported behaviors did not change significantly during the time periods under study. One potential reason for this is that most students are able to accurately report their own behavior; it is only when asked to determine what others are doing that they have trouble. It is also possible that while the social norms campaign may have an immediate effect on perceptions of others' behavior, the effect on an individual's behavior may take longer to be evident. The regression analyses look into this in more detail.

### *Behavioral Outcomes*

In order to be consistent with the findings reported for the 2006-2007 school year, several behavioral and experiential variables were examined between the three time periods. The ones reported here were chosen for their consistency with prior reports as well as their potential for



policy implications. Table 18 shows the percent of respondents who answered a particular question. Questions include a descriptor of those people who have bullied the respondent (if the respondent identifies as being a victim), as well as an examination of the places that students would avoid because of a bullying and whether or not students are skipping school in order to avoid a bully. Several patterns emerge.

The first pattern is a statistically significant reduction in the percentage of students who report having been bullied at school between all three time periods. Students consistently reported lower levels of feeling bullied in each time period (T1/T3:  $p < .000$ ); an examination of the means shows that this number was reduced by approximately 10% between the first and the third waves. This trend is not statistically significant when measuring student perceptions of safety at their school, although the direction is the same; over time, students report higher levels of feeling safe (on a 1-10 scale).

One other pattern that is consistent in that students are reporting a statistically significant increase of avoiding specific places around school during Time 3 compared to the other two time periods. This increase persists despite the fact that reports of avoiding certain places was more likely to decrease between Times 1 and 2. While avoiding the bathroom, skipping lunch, and avoiding a class were the only three avoidance tactics to reach statistical significance, the trend is a bit disconcerting. A survey during another time period is necessary to determine whether this is a statistical anomaly or cause for alarm.

It should be noted, however, that many of those places that students avoid most often (such as the hallway, the bathroom, and the lunchroom) are places that are often outside of the view of faculty and staff. These areas are the least structured, both in terms of how to spend time and what are the expectations of behavior. This raises an important point as to which contexts are the most salient for a social norms campaign. This will be discussed in a later section.

**Table 18: Bullying Behavior Outcomes, by Time Period**

	Time 1 Spring/Fall 2006		Time 2 Spring 2007		Time 3 Fall 2007	
	N	%	N	%	N	%
<b>During this school year, have you ever felt bullied at school?</b>	1730	59.2	1934	57.1	2208	49.8
<b>How would you describe the person (or persons) who bullied you most...</b>						
<i>Gender</i>	1023		1110		1086	
One boy		31.7		28.5		32.6
One girl		15.1		14.7		15.6
A group of boys		24.8		22.1		22.2
A group of girls		13.9		17.2		13.3
A group of boys and girls		14.6		17.6		16.4
<i>Age</i>	1021		1084		1073	
Older or mostly older than me		18.4		15.2		16.2
About the same age as me		78.6		81.2		79.1
Younger or mostly younger than me		3.0		3.6		4.7
<i>Race</i>	1000		1071		1045	
Same race or most were the same race as me		76.5		76.3		75.2
Different race or most were different race than me		23.5		23.7		24.8
<b>During this school year have you done any of the things below to get away from a bully at school?</b>						
Skipped recess or playground time	1742	4.2	1900	3.2	2223	5.2
Not gone to the bathroom	1742	4.4	1902	3.6	2223	5.8
Not gone to lunch	1742	2.1	1921	2.1	2223	3.5
Pretended to be sick and went home	1742	4.8	1905	4.9	2223	5.5
Avoided a class	1742	2.1	1914	2.0	2223	3.4
Avoided a hallway	1742	11.0	1837	6.8	2223	9.7
Avoided some other place in school	1742	14.5	1857	10.4	2223	13.0
<b>How often have you skipped school this year because you were afraid of other students hurting you or making fun of you?</b>						
Never	1702	90.5	1906	88.1	2158	90.9
Once		5.7		6.2		4.2
2-3 Times		2.3		2.7		2.2
4 or More Times		1.5		2.9		2.7
<b>How safe feel at school (0 - 10)?</b>	1736	$\mu=7.69$	1948	$\mu=7.65$	2216	$\mu=7.76$

## ***Regression Results***

The regression results reported here examine the impact that exposure to the social norms campaign, net of individual behavior and beliefs, had on a series of outcomes. The two variables used in these models that have not been described previously are the self-reported extent of exposure to the social norms campaign and the sum total of social norms campaign events/messages reported by respondents. Students were asked to report how many times they had seen a social norms message related to bullying in their school; approximately 88 percent (87.9%) of respondents had seen the message at least once, while approximately half (48.9%) reported seeing the campaign more than twice. On average, students reported that they saw or experienced just over five (mean = 5.5; SD = 3.3) of the eleven different campaign options.<sup>26</sup>

Each of the models reported here look at a different outcome while controlling for demographic characteristics, School environment, exposure to the social norms campaign, and related individual behaviors and beliefs. All of the models also include control variables for the school of interest (MS-E is the reference group because it has the largest sample size). Unlike the previous analysis, which utilizes clustered regression to control for potential differences between schools, these models are traditional OLS models. The reason for the difference is due to the small number of schools involved in the Cohort 1 analyses compared to the previous analyses combining the two cohorts; both options yield similarly accurate results. Only the final model is shown in all cases; these models showed themselves to have the best goodness of fit and were robust.

---

<sup>26</sup> The eleven options available to students were having seen and/or heard the messages on posters at school, school newsletters, computer screen savers, school webpages, other print media, on school TV, over announcements on the PA system, through assemblies at school, or by talking to teachers, other students, or parents.

### *School and Classroom Environment*

In determining the impact of exposure to the social norms campaign for students in the Cohort 1 middle schools, it was necessary to also control for the personal experiences and perceptions of individuals. As the model shows, students who reported higher levels of safety and who did not report being bullied were more likely to have more positive perceptions of the school environment. Furthermore, students with fewer pro-bullying beliefs and those that thought their peers had fewer pro-bullying beliefs also reported a more positive school environment. This model clearly shows that one's own experiences have a very strong impact on one's opinion of his/her school, regardless of how an individual believes others experience the same situation. The lack of significance of the variables in the model related to perceptions of others' experiences' suggests that when determining how they feel about school, only one's own environment is salient.

While being exposed to the social norms campaign on its own was not a significant predictor of school environment, the number of campaigns witnessed was. Students who reported seeing a higher number of campaign efforts reported higher levels of school environment. One explanation is that those students who saw a variety of campaign approaches internalized the messages, making them more positive about their school.

As in the previous section, age acts as a protective factor, with younger schools reporting higher levels of school environment.

**Table 19: Bullying Results – School Environment**

Model MS-1: School Environment	
<i>Independent Variable</i>	$\beta(S.E.)$
White Student	.007 (.020)
Male Student	-.019 (.018)
Age	-.021 (.006)***
MS-A	.116 (.036)***
MS-C	-.066 (.032)*
MS-G	-.007 (.149)
MS-H	-.033 (.022)
MS-I	-.157 (.029)***
School Environment	--
Exposure	.005 (.004)
Sum of Exposure	.020 (.003)***
Feelings of Safety	.080 (.005)***
Been Bullied	-.101 (.020)***
Personal Victimization	-.074 (.018)***
Self-Reported Bullying	-.028 (.023)
Beliefs about Bullying	-.138 (.021)***
Perceptions of Others' Victimization	.007 (.017)
Perceptions of Others' Bullying	.004 (.017)
Perceptions of Others' Beliefs about Bullying	-.060 (.018)***
Constant	3.017 (.099)***
<b>Model Summary</b>	
R-squared	0.475

\*\*\*p<.001, \*\*p<.01, \*p<.05

*Self-Reported Victimization, Bullying Behavior, and Beliefs About Bullying*

Models 2 and 3 report on the impact of the series of control variables on a student’s personal experiences at Time 3. Model 2 looks at the relationships between these variables and a student’s own victimization; Model 3 reports on the relationship between these variables and a student’s own bullying behavior. These models confirms several theories about the relationship that students have with school and with each other, including that students who are victimized are also

those reporting bullying behavior. One explanation for this is that students who feel victimized may lash out at others. Another potential explanation is that students who are bullies may also be the target of other students because of their behavior. However, the relationship still leaves many questions, as a student's own bullying behavior is only related to personal victimization experiences and not the other way around. More advanced modeling that is not available at this time would be necessary to parcel out the causal model be inferred here.

In Model 2, several factors are related to a student's own reporting of their victimization, including how safe they feel at school and their perception of classroom environment. Students who report feeling less safe and having a lower perception of classroom environment report more victimization; unfortunately, even with the repeated measures available here, it is not possible to determine whether students were victimized before or after they made decisions about how safe they felt at school, although common sense would suggest it happened before. Model 2 also shows that the more students believe that others are victimized and others act as bullies, the more likely they are to report being victimized. Younger students also report more victimization than their peers.

In Model 3, the relationship between bullying and victimization is less clear. One of the strongest predictors of self-reported bullying behavior is a student's beliefs about bullying; more positive beliefs towards bullying behavior are related to more bullying. Furthermore, the higher an individual's beliefs about other students' behaviors, the more bullying behavior he/she reports. This underscores two important facts: student beliefs and behaviors at this age are highly correlated and students most likely measure their own behavior against the behavior of their peers. Older students are also more likely to report engaging in bullying behavior; this is not surprising given previous results related to bullying among school age children.

Neither exposure to the social norms campaign nor the amount of exposure are significant in these two models. One explanation for this is that a social norms campaign may impact beliefs before behaviors; certainly, in dealing with adolescent populations, it is possible to impact beliefs without behaviors. Over time, however, a student's behaviors should be in line with their beliefs. A matched sample design would allow for a more nuanced testing of this line of inquiry, but the available data are consistent with what would be expected.

**Table 20: Bullying Results – Self-Reported Behavioral Outcomes**

<i>Independent Variable</i>	Model MS-2: Personal Victimization <i>β(S.E.)</i>	Model MS-3: Self-Reported Bullying <i>β(S.E.)</i>
White Student	-.040 (.026)	-.057 (.021)**
Male Student	.045 (.024)	.002 (.019)
Age	-.030 (.008)***	.022 (.007)***
MS-A	.129 (.049)**	-.036 (.040)
MS-C	.014 (.043)	-.039 (.035)
MS-G	.180 (.199)	.130 (.162)
MS-H	.025 (.029)	.055 (.024)*
MS-I	-.061 (.040)	-.002 (.032)
Classroom Environment	-.132 (.033)***	.033 (.027)
Exposure	.005 (.006)	.008 (.005)
Sum of Exposure	.005 (.004)	.003 (.003)
Feelings of Safety	-.063 (.007)***	-.001 (.006)
Been Bullied	.347 (.026)***	-.053 (.022)*
Personal Victimization	--	.272 (.019)
Self-Reported Bullying	.413 (.029)***	--
Beliefs about Bullying	-.148 (.028)***	.420 (.021)***
Perceptions of Others' Victimization	.100 (.023)***	.036 (.019)
Perceptions of Others' Bullying	.046 (.023)*	.122 (.019)***
Perceptions of Others' Beliefs about Bullying	.130 (.024)***	-.162 (.019)***
Constant	1.275 (.163)***	-.489 (.134)***
<b>Model Summary</b>		
R-squared	0.514	0.510

\*\*\*p<.001, \*\*p<.01, \*p<.05

*Perceptions of Others' Victimization Experiences, Bullying Behavior, and Beliefs About Bullying*

Models 4 through 7 examine the impact that exposure has on youth perceptions, including both their own beliefs on the acceptability of bullying and their perceptions of others experiences and beliefs. Several patterns are consistent throughout these four models. Gender is significant in three of the four models, with male students more likely to have personal higher beliefs about the acceptability of bullying and less likely to report on others' victimization experiences. Males are also less likely to believe that other students have higher beliefs about bullying than are girls; one possible explanation for this is that girls are more likely to be bullied and therefore see their peers as being accepting of those behaviors. Older students are also more likely to report a higher acceptability of bullying behavior, although they also are more likely to report that they believe their peers are being victimized. Older students have most likely been in school longer; they may have internalized the old norms about acceptable behaviors and may take longer to be impacted by the social norms campaign.

Students who report lower feelings of safety at school also report higher beliefs about the acceptability of bullying (Model 4) and higher perceptions that their peers find bullying acceptable (Model 7). One potential explanation for this is that students who do not feel safe, for reasons such as continued victimization (another variable that is significant in both belief models), may fantasize by responding in anti-social ways, like through bullying. These same students may also believe that because they are being victimized, other students must see bullying behavior as acceptable.

Students who report higher levels of bullying also report higher beliefs in the acceptability of bullying (Model 4) and higher perceptions of peers' bullying behavior (Model 6). Furthermore, students who perceive other students as being more accepting of bullying also believe that students engage in more bullying behavior (Model 6).



The relationship with victimization is less clear. Students with lower reports of victimization actually have more pro-bullying attitudes (Model 5). One potential explanation for this is that students who do not feel victimized may not think that bullying behaviors are a problem because either they are not experiencing them or because they are not bothered by them. Indeed, being victimized is positively related to perceptions of peers' victimization (Model 6) and perceptions of peers' beliefs about the acceptability of bullying (Model 7), which suggests that those who are victimized both notice it in other students and believe that other students believe bullying behavior is acceptable.

The exposure variables are only significant predictors of perceptual outcomes, not one's own beliefs and behaviors. At least one of the exposure variables in Models 5, 6, and 7 are significant, suggesting that the social norms campaign increases awareness of others' experiences. Students who report higher levels of exposure report higher levels of peers' experiences with both victimization and bullying, suggesting that the campaigns are making students think about the experiences of both themselves and others. Indeed, Model 7 is particularly indicative of this, where exposure to fewer types of campaign efforts is related to a higher belief that peers find bullying acceptable. In this regard, it can be assumed that the social norms campaign is impacting student beliefs.

**Table 21: Bullying Results – Self-Reported Perceptual Outcomes**

	Model MS-4: Beliefs about Bullying	Model MS-5: Perceptions of Other's Victimization	Model MS-6: Perceptions of Other's Bullying	Model MS-7: Perceptions of Other's Beliefs about Bullying
<i>Independent Variable</i>	$\beta(S.E.)$	$\beta(S.E.)$	$\beta(S.E.)$	$\beta(S.E.)$
White Student	-.013 (.023)	-.025 (.021)	.015 (.021)	.020 (.020)
Male Student	.054 (.021)**	-.081 (.019)***	-.006 (.019)	-.054 (.018)**
Age	.023 (.007)***	.021 (.007)**	-.003 (.007)	.002 (.007)
MS-A	-.044 (.290)	-.042 (.038)	-.009 (.039)	-.015 (.038)
MS-C	-.040 (.037)	-.030 (.032)	-.071 (.032)*	-.133 (.031)***
MS-G	-.383 (.170)*	-.105 (.138)	.156 (.138)	.957 (.135)
MS-H	-.013 (.025)	-.096 (.023)***	-.091 (.023)***	-.092 (.022)***
MS-I	-.096 (.034)**	.014 (.032)	.020 (.032)	-.067 (.031)*
Classroom Environment Exposure	-.183 (.028)***	.025 (.026)	-.022 (.026)	-.134 (.025)***
Sum of Exposure	-.003 (.005)	.110 (.005)**	.014 (.005)**	.005 (.005)
Feelings of Safety	-.006 (.003)	.003 (.003)	.003 (.003)	-.006 (.003)*
Been Bullied	-.022 (.006)***	-.014 (.005)	-.009 (.005)	-.013 (.005)**
Personal Victimization	-.055 (.023)**	-.061 (.021)	.012 (.021)	-.005 (.020)
Self-Reported Bullying	-.109 (.021)***	.150 (.019)***	.005 (.019)	.098 (.019)***
Beliefs about Bullying	.468 (.023)***	-.013 (.023)	.256 (.022)***	-.195 (.022)***
Perceptions of Others' Victimization	--	.023 (.022)	-.153 (.022)***	.591 (.019)***
Perceptions of Others' Bullying	.002 (.020)	--	.683 (.013)***	-.002 (.018)
Perceptions of Others' Beliefs about Bullying	-.096 (.020)***	.680 (.013)***	--	.223 (.017)
Constant	.436 (.018)***	.022 (.018)	.231 (.018)***	--
	1.131 (.139)***	.164 (.136)	.134 (.137)	1.295 (.132)**
<b>Model Summary</b>				
R-squared	0.573	0.634	0.666	0.481

\*\*\*p<.001, \*\*p<.01, \*p<.05

Overall, these models suggest that exposure to the social norms campaign is a significant predictor of students' perceptions. Furthermore, the relationship between students' perceptions and their behaviors is a strong one. In light of the fact that many of the targeted outcomes have decreased during the study period, along with the fact that the relationships between behaviors and perceptions are in the expected direction in the models described above, strong evidence exists for the ability of a social norms approach to impact student outcomes. The results from these set of analyses suggests that the impact on perceptual outcomes is stronger than the impact on behavioral outcomes; nonetheless, this could just be a function of the fact that it takes longer to change behavior than it does beliefs.

## **Chapter III: High School ATOD Campaign**

### *Part I: Current Year Results*

Like the bullying campaign, the substance use social norms approach is to focus on correcting the misperceptions high school students have about their peers' substance use behavior. By focusing on issues such as binge drinking, the social norms campaign aims to show students that their peers are not engaging in dangerous drinking and drug use in hopes that by having accurate information, youth will make more informed decisions about their own behavior. The use of substances by high school students is well documented, although currently there is mixed evidence as to whether or not substance use is on the rise or in decline. Because trends are not clear, it is important to continue to target substance use by adolescents and not abandon the effort to decrease substance use and abuse. Part II of the present study will add to the literature, particularly with respect to social norms campaigns, by exploring trends within these data by utilizing multiple years and incorporating exposure into the models. Part I, below, details the implementation of the campaign amongst the schools that participated in the social norms project, describes the sample, and provides the survey results for the current year.

#### *Program Implementation*

The social norms program has a number of components. In addition to attending training sessions at the Center for Addiction Studies, conducting steering committee meetings and discussing the campaign with teachers both inside and outside of faculty meetings, the high schools involved in the ATOD social norms campaigns utilized up to seven additional strategies to relay the campaign message. The messages were printed on posters, contests (a school-wide); games (individual approach such as a paper puzzle); prizes (something won for already knowing the message); giveaways (as incentives or given out freely), and assemblies, and/or large group gatherings. There

was also an “other” strategies category to capture project activities. (Please see Connell, et al. (2007a) report provides rich description of the type of campaigns involved in this project).

One of the recommendations from the evaluation last year was to standardize program implementation (Connell, et al. 2007a; Flower 2007) to more accurately capture the programmatic activities of the schools. These prior reports noted that the quality and quantity of information about implementation varied considerably between schools, resulting in a recommendation that implementation data should be collected periodically and systematically so that these data can be used to provide the schools feedback on their progress in meeting their implementation goals. This would give schools an opportunity to revise their implementation approach to enhance the probability of meeting their implementation goals. In response, in the beginning of the campaign year, the Center for Addiction Studies (CAS) program administrators worked with the evaluators to establish implementation standards for all schools for both campaigns (See Appendix A). In addition, schools were provided a “School Activity Report” (See Appendix B) with which to capture the data necessary to ascertain fidelity to the program standards. These forms were to be completed by the schools three times per year and submitted to CAS.

The data from these reports indicate that of the 12 implementation standards, the high schools met 5 (see Table 22 below). High schools met the standards related to discussion of the campaign in faculty meetings (83% of schools report discussing the campaign three times over the course of the year), attendance at required trainings (100% of Cohort 2 schools were trained at either a regional training session or individual on-site training sessions), and 100% school campaign coordinators advised they had at least 2 informal discussions with staff outside of faculty meetings on any given month. Consistent with the middle school results, of those who reported the date of submission, all schools were in compliance with the submitting the consent letter at least two weeks prior to administration of the survey. On one other measure, the high schools far exceeded their

goal in actively engaging the community in the campaign with a goal of 20% of schools would meet this standard, but 67% of high schools did so. Again, similar to the findings in the middle schools, although the overall rate of compliance for meeting all of the standards were low (5 of 12 or 42%), in several standards, schools were very close to meeting the goal. For instance, one goal was that 75% of schools would implement at least two strategies to disseminate the messages and the high schools came close (58%) meeting this standard. High schools were also very close to meeting the standard with respect to steering committee meetings – 83% had at least one such meeting over the year.

**Table 22: High Schools Implementation Standards, Descriptives and Results**

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
100% of schools will put up posters containing social norms messages.	12	0 to 4	2.08 (1.88)	<b>No</b> – 7 of 12 (58%) schools reported putting up posters
100% of schools will attend at least one social norms training. <sup>27</sup>	12	0 to 1	1.0 (.00)	<b>Yes</b> – 9 of 9 (100%) attended training
100% of schools will have at least one Steering Committee Meeting.	12	0 to 3	2.08 (1.24)	<b>No</b> – 10 of 12 (83%) reported 1 or more Steering meetings
75% of Schools will implement at least two strategies (e.g., posters, contests, games, giveaways, assemblies and/or other activities) intended to disseminate social norms messages to students.	12	0 to 7	3.08 (2.43)	<b>No</b> – 7 of 12 (58%) implemented 2 or more strategies

<sup>27</sup> As with the middle schools, only those schools new to the social norms campaign were required to attend a social norms training during the school year. Eight of the high schools in Cohort 2 attended either the regional trainings held in March 2007 or August 2007; one high school attended an individualized on-site training session specifically designed for that district.

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
50% of schools will communicate the social norms campaign to faculty members by discussing the campaign in faculty meetings at least once per reporting period (a total of three discussions over the school year).	12	0 to 3	2.08 (1.08)	<b>Yes</b> – 10 of 12 (83%) schools discussed the campaign during faculty meetings at least 3 times during the year
90% of campaign coordinators will report that in any given month, they had 2 “informal” conversations with other faculty members about the social norms campaign. “Informal” is defined as any conversation outside of a faculty meeting.	12	2 to 3	2.67 (.49)	<b>Yes</b> – 100% of schools reported having at least 2 informal discussions in any given month
The administrator, SAC, or teacher responsible for coordinating the social norms campaign in 80% of schools will have one game each reporting period (for a total of three games over the school year) to be made available to faculty for use in classrooms. Games can either be created by the school, or the school can distribute games created by the Center for Addiction Studies.	12	0 to 0	0 (0.00)	<b>No</b> – None of the schools reported having games available
75% of campaign coordinators will report that they disseminated at least one game to 20% of the faculty members over the school year.	12	0 to 0	0 (0.00)	<b>No</b> – None of the schools reported having distributed games to faculty members
100% of schools will send a letter advising parents of the project and seeking parental consent for student participation in the survey no later than 2 weeks prior to administration of the survey.	10	0 to 1	1.00 (SD 0.00)	<b>Yes</b> – 10 of 12 schools who reported the dates consent letters were sent in compliance. Missing data on two schools.
30% of schools will report that they <b>actively</b> advised parents about the social norms campaign survey results and/or other campaign activities ( <b>excluding the request for parental consent for student survey participation</b> ) through parent/teacher conference events, Parent Teacher Association meetings, e-mails, or letters sent home and/or other media.	12	0 to 3	1.42 (1.08)	<b>Yes</b> - 9 of 12 schools (75%) reporting actively engaging parents

Standard	Descriptives			Standard Met?
	N	Range	Mean (SD)	
90% of schools will report that they <b>passively</b> advised parents about the social norms campaign about the survey results and/or campaign activities through posting information on a website, school newsletter, or other media that provides a venue to communicate to parents.	12	0 to 3	1.50 (1.00)	<b>No</b> - 10 of 12 schools (83%) reported communicating with parents
20% of schools will report they advised the community about the social norms campaign through article(s) in the newspaper, community meetings, and/or other media.	12	0 to 2	.83 (.57)	<b>Yes</b> – 8 of 12 (67%) schools engaged the community

The schools were far from the benchmark on one key benchmark that sought 100% compliance: utilization of posters as a campaign strategy. Only 5 of the 12 schools (42%) reported placing posters in the school. This result may be explained, at least in part, by the lack of consistent submission of the activity and campaign coordinators possibly forgetting to report aspects of the campaign. This would be particularly salient if only one report was submitted during the school year. This was less of an issue with the high schools than with the middle schools (three high schools provided one report, five provided 2 reports, and three schools were in compliance with the reporting requirement of 3 reports.) In addition, the lack of activity, particular with regard to posters, may be because several high schools did not survey in time to put up posters. These results indicate, as with the middle school, that this situation should be viewed as an opportunity. Goals can now be set in accordance with this base-line data and the schools, the program administrators and the evaluator should review these standards and the findings and adjust accordingly.



### *Survey Methodology*

Students in grades nine through twelve in high schools engaged in the social norms project were asked questions about their own alcohol, tobacco, and other drug (ATOD) use as well as questions pertaining to their perceptions of their peers' substance use behavior. Students were also asked about their resistance strategies in the event they choose not to use alcohol and/or tobacco and about any negative consequences that had occurred because of their drinking (a copy of the survey can be found in Appendix G). The survey also asked youth to provide their demographic characteristics, including age, grade, race, and gender. The majority of surveys were administered during a three-month period from December 2007 to February 2008, with one survey completed in March of 2008. Of the fifteen high schools that began participation in the social norms campaign at the beginning of the school year, twelve schools completed the surveys. The reading level for both surveys was approximately at the seventh grade reading level, as measured by the Flesch-Kincaid grade level readability statistics.

Parental consent for participation in the high school survey was obtained in the same way as with the middle school survey (see Appendix I for Parental Consent Form). Students were asked to bring consent forms home and have them signed by their parents. Upon receipt of a signed consent form, students were able to complete the survey.

Survey administration procedures in the high schools also followed closely with those of the middle schools. All surveys were administered in an on-line format in the school computer lab, utilizing the same login procedures as the middle school survey. Students were brought to the computer lab either by group or were allowed to go to the lab individually; in both cases, students were not allowed to complete the survey until parental consent was confirmed.

### *Data and Measures*

Using the survey data from the high school students in the schools that participated in the project, eight scales related to alcohol, tobacco, and other drug use (ATOD) experiences in school from last year's report were replicated (Connell, et al. 2007b) These scales were created to measure a variety of attitudes including the overall school environment, perceptions of alcohol, tobacco, and other drug use by respondents' peers, as well as alcohol and tobacco resistance skills. Table 16 lists all of the scales that were created using the questions from the survey. The table also lists the Cronbach's alpha for each scale (as indicated in Table 23, scale reliabilities range from .55 to .92)<sup>28</sup>, and the average student response on the scale and the minimum and maximum responses. This section will explain the scales in detail.

---

<sup>28</sup> Generally speaking, scales with an alpha level of .70 or higher are considered adequate (Kerlinger & Lee, 2000).

**Table 23: ATOD Scale Reliabilities**

	Items	Alpha	Range	Mean	N
<b>Survey Scales</b>					
<b>School Environment</b> (higher values indicates more positive climate)	9	.75	1 to 4	2.86	3215
<b>Perceptions of Others' Tobacco Use</b> (higher values indicate more tobacco use)	6	.87	0 to 6	1.53	3156
<b>Perceptions of Others' Alcohol Use</b> (higher values indicate more alcohol use)	6	.91	0 to 6	1.33	3149
<b>Perceptions of Others' Marijuana Use</b> (higher values indicate more marijuana use)	6	.92	0 to 6	1.54	3152
<b>Perceptions of Others' Illicit Drug Use</b> (higher values indicate more illicit drug use)	6	.92	0 to 6	1.30	3143
<b>Negative Consequences of Drinking*</b> (higher values indicate more negative consequences have occurred)	15	.88	0 to 2	.33	1325
<b>Smoking Resistance Skills</b> (higher values indicate more resistance skills utilized)	5	.67	0 to 1	.43	3211
<b>Drinking Resistance Skills</b> (higher values indicate more resistance skills utilized)	6	.55	0 to 1	.33	3211

\* Only those who reported they drank alcohol in the prior 12 months

*School Environment:* In order to assess the respondent's experiences at school, a school climate scale was created. This scale was created using the same questions as the school climate scale for the middle schools. Please refer to the previous section for a description of this scale. As with the previously described school climate scale, higher lower values indicate a more positive school climate. The Cronbach's alpha for this scale was .75.

*Perceptions of Others' Tobacco Use:* Students were asked several questions about their perceptions of their peers tobacco use. The respondents were asked how often students in five categories typically used tobacco: never; 1 to 2 times per year; once a month; twice a month; once a week; twice a week; or, daily. The five categories of students that were included in this measure

were: the respondent's friends; students in his/her same grade; males in his/her grade; females in his/her grade; high school juniors and seniors; and, school athletes. Responses were coded on a 0 (Never) to 6 (Daily) scale. Higher responses indicate that respondent believed that other students were using tobacco more frequently. The Cronbach's alpha for this scale was .87.

*Perceptions of Others' Alcohol Use:* Students were asked similar questions about their perceptions of their peers' alcohol use. As with tobacco use, students were asked to rate how often students in five categories typically use alcohol: never; 1 to 2 times per year; once a month; twice a month; once a week; twice a week; or, daily. The five categories of students were the same as with the tobacco questions: the respondent's friends; students in his/her same grade; males in his/her grade; females in his/her grade; high school juniors and seniors; and, school athletes. Higher responses indicate that respondent believed that other students were using alcohol more frequently. The Cronbach's alpha for this scale was .91.

*Perceptions of Others' Marijuana Use:* This scale was created in the same way that the tobacco and alcohol scales were created. Students were asked to rate how often students in the same five categories typically use marijuana; responses utilized the same response categories. Higher responses indicate that a respondent believed that other students were using marijuana more frequently. The Cronbach's alpha for this scale was .92.

*Perceptions of Others' Illicit Drug Use:* The last perception scale focused on students' perceptions of others' illicit drug use (not including marijuana). As with the previous three scales, students were asked how often their peers in five categories used illicit drugs; higher responses indicate that respondents believe their peers are using illicit drugs more frequently. The Cronbach's alpha for this scale is .92.

*Negative Consequences of Drinking:* The survey asked students several questions about any negative consequences that they had experienced because of their drinking. This question was only

asked of those respondents who had indicated that they had drunk at least once in the twelve months prior to the pre-test. Fifteen negative consequences were identified. They were: physical injury to self; physical injury to others; fighting; damage to property; cutting class; inefficiency in homework or class work; late papers and/or missed exams; damaged friendships and/or relationships; impaired driving; inability to remember actions; missed performance or poor performance in an athletic event, hospitalization; punishment by parent or guardian; trouble with the police; and, sickness. Respondents replied whether these consequences had occurred (1) or had not occurred (0) in the last 12 months. The Cronbach's alpha for this scale is .88.

*Smoking Resistance Skills:* Respondents were asked several questions about the techniques that they utilized to resist smoking when they are pressured by their peers. The five techniques that students were asked about were: avoiding places where people are smoking; leaving places where people are smoking; avoiding smokers; hanging out with people who don't smoke; and, telling people that they don't want to smoke. Respondents were asked to choose all of the techniques that they had employed, so they could report using no techniques (0) or using all techniques (5). The Cronbach's alpha for this scale is .67.

*Drinking Resistance Skills:* Students were also asked about the techniques they employed when deciding to resist peer pressure to drink alcoholic beverages. The six techniques that students were asked about were: not going to parties where people are drinking; leaving parties where people are drinking; hanging out with people who don't drink; telling people that they don't want to drink when asked; holding an alcoholic drink but not drinking it; and, drinking non-alcoholic beverages instead. Students could report using none of the techniques (0) or all of the techniques (6). The Cronbach's alpha for this scale is .55. Overall, these scales are reliably capturing the concepts being evaluated by the social norms campaign. Further, by continuing to assess outcomes with the same scales as in prior years, this data can be utilized to provide an analysis of trends, provided in Part II.

There are also a number of independent variables available for inclusion in this study to account for differences in the outcomes. Individual measures included the age of the student, race (white versus non-white), gender (male versus female) and their self-reported average grade or letter grade. There were also a number of school level measures (e.g., school size, average class size and school mobility rate) obtained from the New Jersey Department of Education. In addition, six of the individual survey responses were aggregated to provide an overall school measure on these aspects of ATOD behavior and attitudes. These six variables were the proportion of the school that drank alcohol in the last 30 days, the proportion who smoked in the prior 30 days, mean number of days drank over the last 30, and the average number of days the respondents smoked in the last 30. The remaining two school-level variables were the perception by students of the percent of their fellow students who never smoke, and percent that never drank. While not all variables were included in the final analysis, the reader may find these descriptives of interest in providing an overview of the measures considered. See Table 24.

**Table 24: ATOD Variables - School Level/Aggregated Measures**

	<b>N<sup>29</sup></b>	<b>Range</b>	<b>Mean (SD)</b>
<b>School Level Variables</b>			
<b>School Size</b>	11	68.00 to 1764.00	897.00 (531.04)
<b>Average Cass Size</b>	10	17.60 to 23.90	20.86 (2.21)
<b>School Mobility Rate</b>	10	2.80 to 28.70	10.34 (9.70)
<b>IEP Rate</b>	10	0.00 to 21.40	14.14 (6.04)
<b>Non-Attendance Rate</b>	10	.90to 35.60	9.98 (10.48)
<b>Suspension Rate</b>	10	4.80 to 36.90	14.48 (9.53)
<b>Percent Subsidized Lunch</b>	11	0.00 to 72.06	14.48 (22.41)
<b>Race – Percent Black</b>	11	0.85 to 52.67	23.42 (20.13)
<b>Gender – Percent Male</b>	10	46.47 to 82.35	55.87 (10.28)
<b>Aggregated School Variables</b>			
<b>Proportion Drank in Last 30 days</b>	12	.23 to .57	.35 (.10)
<b>Proportion Smoked in Last 30 days</b>	12	.07 to .57	.16 (.13)
<b>Days Smoked in Last 30 Days</b>	12	.94 to 11.25	2.50 (2.84)
<b>Days Drank Alcohol Last 30 Days</b>	12	.94 to 5.96	1.84 (1.40)
<b>Perception % Students Never Smoke</b>	12	23.41 to 64.17	50.30 (10.45)
<b>Perception % Students Never Drink</b>	12	27.81 to 46.05	34.91 (5.41)

*Sample*

A total of 12 schools participated in high school survey. Surveys were administered to 3,246 students. Table 25 shows the demographic results for the entire high school sample. The age range for respondents was between thirteen and twenty-one years old, with an average age of 16 years old. Students in grades nine through twelve were surveyed and the average grade level was tenth grade

---

<sup>29</sup> We were unable to locate data for one of the high schools.

(10.17). The sample was 8.37% African-American and under half (45%) of the students who participated were male.

**Table 25: Demographic Characteristics for High School Sample – Full Sample**

Overall Sample		
N (3501)		
	<i>Average</i>	<i>N</i>
<b>Age</b>	$\mu = 15.59$	3234
<b>Grade Level</b>	$\mu = 10.17$	3235
	<i>Percent</i>	<i>N</i>
<b>Percent Black</b>	8.3	2759
<b>Percent Male</b>	45.2	3235

Table 26 provides an additional view of the data by looking at several key demographic and items by cohort. Cohort 1 schools (N=992) are those that have been in the social norms project for more than one year, while Cohort 2 schools (N=2245) are new to the program this year. There are significant differences between Cohort 1 and Cohort 2 schools. Students from Cohort 2 schools are significantly more likely to be white than Cohort 1 schools (.78 versus .58, respectively) ( $p < .01$ ) and there are more male students in Cohort 2 proportionally than Cohort 1 (.47 in Cohort 2, .42 in Cohort 1  $p < .05$ ). Cohort 2 respondents report significantly fewer days smoking cigarettes and perceive there are more non-smokers in their midst than the Cohort 1 students (both significant at  $p < .01$ ).

The biggest changes between the samples are the shift in the demographic profile of Cohort 2 respondents. Whereas in the middle schools there were more African Americans in the sample in Cohort 2 (and fewer Asians) the opposite is true in the high school samples. In Cohort 1, survey respondents were 4% Asian, 12.6% African American and 18% Hispanic/Latino; the students in Cohort 2 are 7.6% Asian, 6% African American, and are 3.4% Hispanic.<sup>30</sup> Two other significant

---

<sup>30</sup> Results not shown but are available upon request. Again, as noted previously, for four of the Cohort 2 high schools, the race variable was omitted from; this may contribute to the differences found in these results.



differences between the cohorts are related to tobacco use and perceptions of use. Cohort 2 students report smoking tobacco less often than those in Cohort 1 schools (1.43 times in the last 30 days compared to 2.31 times). These students also report the perception that more of the school population never smokes (55% of Cohort 2 students versus 48% of those in Cohort 1.).

**Table 26: Demographic Variables by Cohort**

	<b>Range</b>	<b>Total (N=3234)</b>	<b>Cohort 1 (N=992)</b>	<b>Cohort 2 (N=2245)</b>
		Mean (SD)	Mean (SD)	Mean (SD)
<b>Age</b>				
Range		13 to 21	13 to 19	13 to 21
Mean (SD)		15.59 (1.18)	15.77 (1.23)	15.51 (1.15)
<b>Race -</b>		N=2759	N=971	N=1788
Proportion White	0 to 1	.72 (.45)	.58 (.49)	.78** (.41)
<b>Gender - Proportion Male</b>	0 to 1	.45 (.50)	.42 (.49)	.47* (.50)
<b>Letter Grade most often receive</b>	0 to 4	3.24 (.64)	3.23 (.67)	3.24 (.62)
<b>Grade Level</b>	9 to 12	10.17 (1.05)	10.36 (1.09)	10.08 (1.02)
<b>ATOD Use</b>				
How Often Drank last 12 months	0 to 3	.78 (.96)	.79 (.95)	.78 (.96)
Days Smoked in Last 30 Days	0 to 30	1.70 (6.13)	2.31 (7.29)	1.43** (5.53)
Days Drank Alcohol Last 30 Days	0 to 30	1.63 (4.15)	1.72 (4.48)	1.58 (4.00)
Proportion Drank in Last 30 days	0 to 1	.34 (.47)	.34 (.47)	.35 (.47)
Proportion Smoked in Last 30 days	0 to 1	.12 (.33)	.14 (.34)	.12 (.32)
<b>Perceptions of Others Use</b>				
Perception % Students Never Smoke	0 to 100	52.98 (26.22)	48.55 (26.30)	54.93** (25.96)
Perception % Students Never Drink	0 to 100	35.00 (25.10)	34.27 (24.68)	35.32 (25.29)

\*p<.05 \*\*p<.01

The next step is to ascertain if those in this sample of students are representative of their school overall. This is discussed below with related data provided in Table 27. Table 27 provides the demographic characteristics for each of the individual schools including age, grade level, percent black, percent male and percent of those surveyed within the school. The shaded columns contain the school level summary measures for percent black and percent male to allow for a comparison to ascertain if the respondents were representative of other students in the school generally.

**Table 27: Demographic Characteristics for High School Sample – Individual Schools**

School	<i>Demographics of Respondents Surveyed by School</i>							<i>School Level Descriptives</i>	
	<i>N</i>	<i>Age</i>	<i>Grade</i>	<i>% Black</i>	<i>% Male</i>	<i>% Surveyed</i>	<i>% Black</i>	<i>% Male</i>	
HS-A	214	15.63	10.2	13.1% **	42.1% **	42.6%	20.7%	54.6%	
HS-B	167	15.39	10.1	2.4% **	48.5% **	23.5%	1.4%	50.1%	
HS-C	275	16.17	10.7	25.1% **	40.5% **	29.9%	34.1%	50.5%	
HS-D	29	16.31	10.6	33.3% **	79.3% **	12.9%	50.0%	82.4%	
HS-G	305	15.66	10.3	4.7% **	36.4% **	30.4%	6.7%	51.8%	
HS-J	81	16.27	10.5	N/A	41.5% **	79.9%	47.9%	66.5%	
HS-K	762	14.96	9.5	8.8% **	48.6% **	70.3%	7.3%	46.5%	
HS-L	517	15.47	10.2	1.2% **	46.9% **	14.0%	0.9%	53.1%	
HS-M	93	16.15	10.5	N/A	38.7% **	21.2%	27.5%	48.7%	
HS-N	99	15.92	10.5	N/A	37.4% **	19.4%	N/A	N/A	
HS-O	122	16.03	10.6	N/A	41.3% **	29.3%	52.7%	58.0%	
HS-P	570	15.86	10.4	6.8% **	48.1% **	42.6%	8.5%	52.4%	
Total	3234	15.59	10.2	8.3% **	45.2% **	33%	13.2%	51.6%	

N/A=Schools missing race data

\*p<.05 \*\*p<.01

As Table 27 indicates, on average 45% of school population was surveyed, although this varied greatly from a low of 12.9% at HS-D to a high of 79.9 at HS-J. The average age and grade level was consistent across samples with the exception of HS-K, where students were between 9<sup>th</sup> and 10<sup>th</sup> grades and on average were 15 years old. Looking to both the survey and the school level characteristics there is great variation in the percentage of black students who attend these schools and whom took the survey. The percentages range from 1.2 to 33% and paired t-tests between the percent black students surveyed versus percent black in the student population indicate that the proportion of black students surveyed is not representative of the student body, for any of the schools (significant at p<.01). Likewise, the proportion of male students who took the survey is significantly different than the number males attending each school. As noted with the middle school survey results indicating the same pattern, one way to eliminate this situation is to randomly assign students to complete the survey from the pool of those who have parental consent, so that some children complete the survey and some do not. Again, this would require a much larger pool

from which to assign students, likely a problem for those schools with fewer respondents. Thus the differences between the sample population and the school population are noted as a limitation to both these results and to the conclusions one may draw generally about the schools involved in the ATOD campaigns.

### *Method of Analysis*

As discussed with regard to the analysis of the middle school survey results, the appropriate method of analysis to determine the relationship between these individual and school characteristics on these outcomes is Ordinary Least Squares (OLS) multiple regressions. OLS is advantaged in the ability to combine a number of different variables and assign a relative and unique weight to each of the variables employed in the regression model. Also noted above, the survey findings presented below were determined using OLS while controlling for clustering to control between school differences. This is necessary as the students are grouped within the 12 high schools and it is more likely that two individuals in the same school may be more alike than two individuals from a different school. While the value of the beta coefficient remains the same, failure to control for clustering can result in asserting a significant finding when there is none (or a weaker relationship is evidenced when you do not account for this grouping).

The analysis on the scale outcomes included four different models. The first model included the full sample and individual characteristics of age, white (or non-white), average letter grade or GPA and male (or female). Given the diversity of these different schools in terms of population size (ranging from 68 to 1764), school size was included in the analysis as a control for differences between the schools. In addition, a second school level variable – the aggregated mean value of

the proportion of respondents who report smoking cigarettes at least once in the prior 30 days.<sup>31</sup>

The second model contains the items of the first model, but drops the race variable. The third and fourth models provide a comparison between Cohorts 1 and 2 on the models explored in the third model. To summarize, the four models explored in Part I are:

- Model 1: Age, Male, GPA, White, Proportion Smokers, School Size, Outcomes both cohorts
- Model 2: Age, Male, GPA, Proportion Smokers, School Size, Outcomes , both cohorts
- Model 3: Age, Male, GPA, Proportion Smokers, School Size, Outcomes, Cohort 1 only
- Model 3: Age, Male, GPA, Proportion Smokers, School Size, Outcomes, Cohort 2 only

### ***Regression Results***

A number of outcomes were analyzed including the eight scales and three individual behavioral items including number of days smoked cigarettes in the past 30 days, number of days the respondent smoke marijuana, number of days they drank alcohol. Further, the perceptual item which was significantly different from Cohort 1 to Cohort 2 – percent of student population that never smokes - was examined as well as the percent of the student population that never drank. Not all of these outcomes analyzed in the present effort are reported because many are consistent with the prior studies on these data by Connell, et al. (2007b) and Flower (2007), thus exhibiting consistency across similar patterns for multiple periods. (Part II of this chapter will extend this inquiry by analyzing these multiple data points in the trend analysis). Generally, findings indicate that age is related to ATOD behaviors and perceptions use. Older students are more likely to report smoking and drinking in the prior 30 days, more likely to perceive that their peers smoke and drink, and are less likely to think that peers never smoke or drink. Older students are also significantly less likely to utilize either tobacco or alcohol resistance skills. Race is a significant factor in a few

---

<sup>31</sup> The proportion of students who reported drinking in the last 30 days was also considered but later dropped from the model when tests indicated a Variance Inflation Factor of 2.7 and tolerance statistic of .36 – indicating multicollinearity.

outcomes – white students are less likely to utilize either alcohol or tobacco resistance skills. White students are also significantly less likely to perceive that their peers never drink alcohol. Performing well in school is significantly related across all outcomes – students with higher grades report smoking and drinking less often, are more likely to engage in utilization of resistance skills, are less likely to perceive that others smoke or drink, and are more likely to believe that peers never drink or smoke.

In last year's report, Connell, et al. (2007b) focused on the influence of campaign exposure while controlling for both individual (age, race, gender and GPA) and between school differences. Flower (2007) included measures of program implementation and a macro-level poverty scale on many of the same ATOD outcomes while controlling for age, race and GPA (gender was not a significant factor so was dropped from the final models). The present study continues to control for individual and school level differences, but adds school size (to differentiate between the schools) and the aggregated proportion of those who smoked in the prior 30 days (1 for yes, 0 for no). Only the outcomes in the present period of study that are particularly different or of interest will be reported below. These outcomes discussed include the perception of no tobacco use among students, with respect to utilization of tobacco resistance of skills while controlling for those who smoke, and to note several cohort differences within these data.

### *Perceptions of Abstinence*

Both of the prior year studies looked at frequency of tobacco and alcohol use and found that older students and those who had lower scholastic performance reported more substance use. The studies also found somewhat contradictory findings -- while both found that younger students, and those with better GPA scores, reported higher perceptions of fellow students abstaining from tobacco use, Connell, et al. (2007b) also found that gender was significant. Males reported higher

perceptions of those who do not smoke. This gender difference was confirmed in the present study (see Table 28 below). This is somewhat puzzling; but there may be one or more factors contained within these multi-level analyses which account for this finding and/or gender is as a proxy for an as yet undefined variable. This is evident by the appearance of a gender difference when the model adds controls for factors beyond the individual (e.g., school size and campaign exposure), yet when Flower (2007) also incorporated measures of implementation fidelity the gender difference on this measure was in the opposite direction. Girls were significantly more likely to perceive their peers as using no tobacco (See Figure 15 in Flower 2007). Alternatively, perhaps this is more evidence of the impact of social distance on accurate perceptions of others' behaviors. Studies of social norms campaigns on college campuses have found that the greater the "social distance" between the individual and those they are reporting on, the higher the inaccuracy of perceptions (LaMastro & LaMastro, 2007) (and conversely, the less social distance, the more accurate are perceptions). Perhaps "other" students are conceptually too distal for an accurate assessment of behavior. Returning to Table 19, note that 12% of students report smoking tobacco in the last 30 days, but on average, respondents believe 35% of their fellow students never smoke, thus vastly **underestimating** the number of non-smokers.<sup>32</sup>

Returning to Table 28, note too that the school level proportion of smokers is significantly related to lower perceptions of those who don't smoke (at  $p < .05$ ) for the first three models. Students who attend schools with a higher proportion of smokers are less likely to perceive others around them as non-smokers. In Model 4, containing only those in Cohort 2, this relationship is no longer significant. This may be the result, at least somewhat, of the change in sample characteristics of Cohort 2 as compared to Cohort 1. Specifically, with regard to their smoking habits -- those in

---

<sup>32</sup> Perceptions of never used alcohol were substantively similar to these findings, (although school level proportion of smokers was not significant in any of the models). These results are available upon request.

Cohort 2 reporting smoking significantly fewer cigarettes in the prior 30 days than those in Cohort 1. This behavioral difference may also indicate a true between sample difference in attitudes and perceptions. These questions can be explored more fully in the coming year’s survey data.

**Table 28: ATOD Results - Perceptions of Tobacco Abstinence**

	(Model 1) Both Cohorts Perceptions of Percent No Tobacco Use	(Model 2) Both Cohorts Perceptions of Percent No Tobacco Use	(Model 3) Cohort 1 Perceptions of Percent No Tobacco Use	(Model 4) Cohort 2 Perceptions of Percent No Tobacco Use
Age	-3.052 (3.42)*	-3.275 (4.76)**	-1.241 (1.35)	-4.550 (11.46)**
Male	5.770 (8.69)**	5.969 (8.55)**	5.071 (3.39)*	6.398 (7.08)**
Letter Grade	8.845 (11.35)**	9.001 (12.14)**	9.936 (5.91)**	8.407 (9.80)**
White	2.448 (1.27)			
Prop. Smokers	-56.560 (2.89)*	-49.733 (2.60)*	-83.796 (3.58)*	20.116 (1.89)
School Size	-0.003 (0.93)	-0.002 (0.75)	-0.005 (1.28)	0.002 (1.30)
Constant	78.365 (6.09)**	80.133 (8.00)**	51.480 (3.18)*	90.641 (12.84)**
Observations	2686	2991	948	2043
R-squared	0.11	0.10	0.14	0.10

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

Findings for perceptions of alcohol and tobacco use were similar across the various studies with older students report having higher perceptions of others’ substance use. This is likely a consequence of higher engagement in ATOD use as these students age. As previously reported in prior studies with these data, those who perform better in school engage less often in substance use, are less likely to perceive others’ use of ATOD and are more likely to engage in resistance skills when needed. However, as evidenced in Table 29, there is a difference by cohort on utilization of resistance skills; described in more detail below.

**Table 29: ATOD Results - Tobacco Resistance Skills**

	(Model 1) Both Cohorts Utilization of Tobacco Resistance Skills	(Model 2) Both Cohorts Utilization of Tobacco Resistance Skills	(Model 3) Cohort 1 Utilization of Tobacco Resistance Skills	(Model 4) Cohort 2 Utilization of Tobacco Resistance Skills
Age	-0.020 (5.49)**	-0.019 (5.45)**	-0.018 (3.95)*	-0.019 (3.70)*
Male	-0.023 (1.80)	-0.029 (2.36)*	-0.017 (0.62)	-0.034 (2.60)*
Letter Grade	0.120 (8.76)**	0.114 (9.88)**	0.121 (4.58)*	0.111 (7.97)**
White	0.001 (0.05)			
Prop. Smokers	-0.297 (2.32)	-0.327 (2.63)*	-0.199 (1.24)	-0.459 (7.45)**
School Size	0.000 (2.93)*	0.000 (3.88)**	0.000 (1.65)	0.000 (3.59)*
Constant	0.363 (6.23)**	0.376 (7.43)**	0.286 (2.01)	0.408 (5.66)**
Observations	2729	3038	969	2069
R-squared	0.09	0.09	0.10	0.08

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

### *Tobacco Resistance Skills*

The addition of the variable capturing the proportion of smokers, aggregated to school level, provides an additional piece of information to those reported with these data (Flower, 2007).

Table 29 indicates a cohort difference among those in Cohort 1 on utilization of tobacco resistance skills and Cohort 2. Cohort 2 girls (at p<.05) and students who attend schools with a higher proportion of smokers overall (p<.01) are less likely to utilize their resistance skills. In contrast, neither of these factors is significant in the Cohort 1 school samples. It is possible that those less likely to utilize resistance skills do so because they smoke. Table 30 provides the utilization of tobacco resistance skills model again, this time including the dichotomous variable which identified those who smoked in the last 30 days (smokers).



**Table 30: ATOD Results - Tobacco Resistance Skills Including Smokers**

	(Model 1) Both Cohorts Utilization of Tobacco Resistance Skills	(Model 2) Both Cohorts Utilization of Tobacco Resistance Skills	(Model 3) Cohort 1 Utilization of Tobacco Resistance Skills	(Model 4) Cohort 2 Utilization of Tobacco Resistance Skills
Age	-0.016 (4.23)**	-0.015 (4.09)**	-0.014 (2.96)*	-0.014 (2.68)*
Male	-0.017 (1.41)	-0.023 (1.95)	-0.016 (0.64)	-0.027 (1.92)
GPA	0.106 (7.55)**	0.102 (8.80)**	0.111 (5.30)**	0.097 (5.95)**
White	0.008 (0.41)			
Smoker 30 Days	-0.007 (10.62)**	-0.007 (10.33)**	-0.006 (7.93)**	-0.007 (7.60)**
Prop. Smokes	-0.190 (1.18)	-0.229 (1.53)	-0.059 (0.33)	-0.423 (8.49)**
School Size	0.000 (2.89)*	0.000 (4.11)**	0.000 (1.82)	0.000 (3.84)*
Constant	0.324 (5.43)**	0.341 (6.36)**	0.239 (1.69)	0.381 (4.81)**
Observations	2717	3026	962	2064
R-squared	0.10	0.10	0.12	0.09

Robust t statistics in parentheses

\*p<.05 \*\*p<.01

Across all models, those who smoke are significantly less likely to utilize tobacco smoking skills ( $p < .01$ ). Note too that the cohort effect for the school level measure of proportion of smokers remains significant for Cohort 2 students, and yet does not acquire significance in the Cohort 1 sample, even when smokers are accounted for in the model. This may support the contention that the social norms campaign is having the desired effect by raising awareness and encouraging youth to make better choices based on the facts rather than conjecture, youth may be more likely to feel ok about resisting engagement in tobacco use. Given the disparity among these cohorts on certain key factors related to smoking (including the amount and frequency of smoking behaviors) this finding should also be re-examined for this cohort after the campaigns have been fully implemented in the Cohort 2 schools. As the survey is anonymous, individual respondents

cannot be linked from survey to survey for a rigorous longitudinal view. However, provided the next Cohort is substantively similar to Cohort 2, comparisons on these measures may be useful.

### *Cohort Differences*

In addition to the cohort differences noted above, analysis on these data reveal other notable differences between Cohort 1 and 2. The following results<sup>33</sup> are based on **differences** among the cohorts (e.g., a factor was significantly related to the outcome in Cohort 1, and is no longer related to Cohort 2).

#### **Compared to Cohort 1, students in the Cohort 2 sample report:**

- Older students report significantly higher perceptions of others' tobacco use;
- Males report lower perceptions of others' marijuana use and others' drug use;
- Older students, boys, and students who have lower GPAs report higher frequency of marijuana use in the prior 30 day period;
- Students with lower grades drink more often than those with better grades;
- Male students are less likely to utilize drinking resistance skills
- Male students, and those with a lower GPA, smoke cigarettes more frequently;

#### **Compared to Cohort 2, Students in Cohort 1:**

- Students attending schools with more self-identified smokers report drinking alcohol more frequently over the prior 30 days period;
- Students attending schools with more self-identified smokers report higher perceptions of others' marijuana use;
- Students attending schools with more self-identified smokers report higher perceptions of others' drug use.

What is evident from this list is that there is a link between tobacco use and alcohol and other drug use; and this link involves both behavioral and perceptual ATOD measures. Observing

---

<sup>33</sup> Results not shown, but are available upon request.

correlations in the model (Appendix J), it is clear that substance use is a generalized construct and smoking cigarettes is related to drinking (correlated to .39), smoking marijuana (.53), and other illicit drug use (.44). Additionally, those schools with a higher proportion of smokers are likely to be more similar to other schools with higher proportion of students who report smoking in the prior 30 days; and given the strong link between smoking and other drug use, perhaps the schools with a higher number of smokers may wish to target at least some of their social norms campaign activities towards smoking. This suggestion is a preliminary one, given that a viable alternative is that this variable -- proportion of the smokers by school -- while representative of tobacco use among students in this survey, may also be a proxy for some other aspect of the schools that remains presently unaccounted for in these results.

In conclusion, the current survey results for the ATOD campaign schools reflect similar patterns as prior studies using these data and outcome measures. The present examination looked at both perceptions of zero tobacco use among the student population and finds that youth vastly underestimate the number of non-smokers in their midst. This inaccurate perception is likely influenced by social distance between themselves and “other” students in school. This report also explored the differences by Cohort, including the utilization of resistance to tobacco skills and behavioral and perceptual measures of ATOD use.

## ***Part II: High Schools: Longitudinal Cohort 1 Analysis***

As with the middle schools, several of the high schools participating in the current study also participated during the previous school year. Of the twelve high schools that implemented a social norms campaign during the 2007-2008 school years, five of the schools had previously participated during the 2006-2007 school year. These five schools are also collectively referred to as Cohort 1. As with the middle schools (as described in the previous chapter), by virtue of having been a part of the New Jersey Department of Education and the Center for Addiction Studies social norms campaign, these five schools have collected survey information from students at three different time periods. The first survey was administered during the Fall 2006 semester, the second during the Spring 2007 semester, and the third during the Fall 2007 semester. At each time, students took the social norms campaign survey described in Part I of this chapter (see also Appendix G). As a result of repeated survey administration, three panels of data are now available for analysis and evaluation.

The current section of this chapter analyzes the results of the social norms campaign in light of the fact that three data points are available in the same way that the middle school data were analyzed. Once again, the three data points do not necessarily include information from the same set of students at each time, but the availability of repeated measures does allow for an examination of whether the implementation of the social norms campaign in these five schools has caused a decrease in both students' behaviors and their perceptions of others' behaviors. The analyses reported here utilized independent samples t-tests to determine differences in scales and behavioral outcomes between time periods and ordinary least squares regression to determine the impact of campaign exposure on outcomes of the most recent survey administration.

### *Sample*

Five high schools administered surveys to students at three separate time periods. The initial survey, referred to as Time 1, was administered during the Fall 2006 semester. The second survey, referred to as Time 2 in the remaining report, was administered during the Spring 2007 semester. The final, and most recent administration, happened during the end of the Fall 2007 semester, with three exceptions.<sup>34</sup> All surveys during Time 3 were completed by the end of winter 2008. Results pertaining to all schools who collected survey data during Times 1 and 2 are available in reports for the previous year (see Connell, et al., 2007a; Connell et al., 2007b; and, Flower 2007). For the purposes of these analyses, only those five schools that collected data at all three time periods will be examined.

The most recent administration, Time 3, was also the smallest, with only 992 students completing surveys. Table 31 shows the demographic characteristics for the students in all three of the time periods involved. Analyses were conducted to examine for differences in demographic characteristics between time periods. Independent samples t-tests confirmed expected school based trends: students were older in the Time 2 sample than they were in both the Time 1 and Time 3 samples ( $T1/T3: p < .05^{35}$ ).<sup>36</sup> This most likely reflects the fact that students are older in the spring than they are in the fall; as the school year continues, students get older.

T-tests also confirmed that the high school was also significantly more diverse at Times 2 and 3 when compared to Time 1. The percentage of white students significantly decreased in both

---

<sup>34</sup> HS-B and HS-G both actually surveyed when school reconvened in the Spring semester, but less than one month after the other schools. HS-A also surveyed in the spring semester, due to an issue with teacher contracts. Because the following models control for school, these time differences are taken into account.

<sup>35</sup> For the ease of reporting, when reporting differences between time periods, only the significance level for the differences between Time 1 and Time 3 will be reported, unless there is a statistical reason to report a different finding. The results are consistent in that the differences between Times 1 and 3 are reflective of the overall trends in the data.

<sup>36</sup> Tables and related analysis are available from the authors for all independent samples t-tests conducted to look at differences in demographic characteristics between time periods. These tables were omitted for ease of reporting and interpretation.

the second and third administrations of the survey (T1/T3:  $p < .000$ ). This trend was also witnessed for the middle schools involved in Cohort 1. As mentioned previously, there are many potential reasons for this; one is that the schools, after analysis of the first report, increased their recruitment of minority students to complete the survey. Given the importance of a representative sample for creating social norms campaign messages, it is very likely that schools actively targeted specific groups of students. It is also possible that the ethnic composition of the schools changed significantly during the two years that the survey was administered. Preliminary data from the New Jersey Department of Education does not suggest this is the case; however, a more thorough analysis can be made once the collection of demographic information for the 2007-2008 school years is completed.

**Table 31: Demographic Characteristics for High School Sample – Cohort 1/Time 3**

	<b>Time 1</b>		<b>Time 2</b>		<b>Time 3</b>	
	<b>Spring/Fall 2006</b>		<b>Spring 2007</b>		<b>Fall 2007</b>	
	N (2186)		N (1616)		N (992)	
	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>	<i>Mean (SD)</i>	<i>N</i>
<b>Age</b>	15.7 (1.27)	2182	16.2 (1.31)	1613	15.8 (1.23)	990
<b>Grade</b>	10.4 (1.14)	2185	10.4 (1.17)	1614	10.4 (1.09)	992
	<i>Percent (SD)</i>	<i>N</i>	<i>Percent (SD)</i>	<i>N</i>	<i>Percent (SD)</i>	<i>N</i>
<b>Percent White</b>	66.0 (.47)	2119	63.9 (.48)	1561	58.6 (.49)	971
<b>Percent Male</b>	45.3 (.50)	2183	44.1 (.50)	1608	42.1 (.49)	989

The demographic characteristics for each of the five high schools in Cohort 1 were also examined separately. Table 32 shows the average age and grade of those students who completed the survey, as well as the gender and racial makeup of respondents. The trends in these data vary from those in the middle school data. While the percentage of Black students did not appreciably change between the three periods, the change in the sample to be more diverse over the three time

periods is related to the increase of other ethnic minorities in each of the sample waves (results not reported here). At the high school levels, schools saw an increase in both Asian and Hispanic populations, leading to the increased diversity noticed in the samples.

As is to be expected, the age and grade of students participating increased between Times 1 and 2, with Time 3 being more closely aligned with Time 1 than Time 2. As speculated earlier, this is most likely the result of the fact that students are older during the spring than they are during the fall semester. Schools also were generally consistent in the proportion of males who took the survey during each time.

The high schools involved in the survey had a more difficult time sampling a representative proportion of its students during subsequent surveys. One potential reason for this is that because high school students are older, they may either be more likely to be absent on the days of survey administration or less likely to be interested in participation to begin with. High school students are most likely less interested in the incentives that come from survey participation and they may also have rocky relationships with their parents, making it less likely that the students will return consent forms. One potential for the future would be to examine new incentives for participation that high school students would consider worthwhile. This may help increase the percentage of students that get surveyed at each of the high schools.

**Table 32: Demographic Characteristics for High School by Time and School**

<b>2005-2006 School Year</b>						
	<b>School</b>	<i>N</i>	<i>% Black</i>	<i>% Male</i>		
	HS-A	694	15.8	49.0		
	HS-B	1150	2.0	51.4		
	HS-C	1311	34.0	51.6		
	HS-D	68	N/A	N/A		
	HS-G	1585	5.4	49.5		
<b>Time 1 Fall 2006</b>						
<b>School</b>	<i>N</i>	<i>% Black</i>	<i>% Male</i>	<i>Age</i>	<i>Grade</i>	<i>% Surveyed</i>
HS-A	189	10.4	41.3	15.4	10.3	27.2
HS-B	651	1.2	46.8	15.7	10.4	56.6
HS-C	514	32.9	45.4	15.9	10.5	42.4
HS-D	30	36.7	80.0	16.0	10.5	44.1
HS-G	802	3.5	43.6	15.5	10.3	50.6
<b>Time 2 Spring 2007</b>						
<b>School</b>	<i>N</i>	<i>% Black</i>	<i>% Male</i>	<i>Age</i>	<i>Grade</i>	<i>% Surveyed</i>
HS-A	178	8.1	37.1	15.9	10.3	25.6
HS-B	408	0.7	45.8	16.3	10.6	35.5
HS-C	436	33.3	45.9	16.3	10.5	33.3
HS-D	25	34.8	84.0	16.0	10.3	36.8
HS-G	561	4.0	41.9	16.1	10.2	35.4
<b>Time 3 Fall 2007</b>						
<b>School</b>	<i>N</i>	<i>% Black</i>	<i>% Male</i>	<i>Age</i>	<i>Grade</i>	<i>% Surveyed</i>
HS-A	214	13.1	42.1	15.6	10.2	30.4
HS-B	168	2.4	48.5	15.4	10.1	14.0
HS-C	275	25.1	40.5	16.2	10.7	21.2
HS-D	29	33.3	79.3	16.3	10.6	42.6
HS-G	306	4.7	36.4	15.7	10.3	19.3



### *Method of Analysis*

As with the middle school methods, having data available for three different time periods offers a unique opportunity to look at the impact of the social norms campaign over two separate implementations and for more than one school year. One limitation, however, is that the students participating in each wave of the survey are not necessarily the same as those participating in the other waves. As such, each of the three time periods must be looked at independently of the others, allowing for the analysis of trends within schools but not allowing for the inference that the social norms campaign impacts individuals. All of the following analyses, therefore, are in terms of school trends and not individual causal mechanisms.

The analysis of school trends is undertaken using independent samples t-tests. As explained in the previous chapter, by treating each of the waves as coming from separate groups of people, the independent samples t-tests test for differences between the means of the outcomes between the three time periods.<sup>37</sup> Both scale and behavioral outcomes are analyzed; this is especially important in light of the goal of a social norms campaign, which should bring perceptions in line with actual behaviors.

The analysis of the impact of campaign exposure on both scale and behavioral outcomes for high school students is also undertaken using an Ordinary Least Squares regression model. As described in the previous chapter, the OLS model is ideal for measures with a continuous dependent variable; all models reported here fall into that category. It should be noted here that a decision was made to not include predictors from previous time periods in the model in light of the fact that it cannot be determined whether the samples include the same respondents and if so, what percentage of respondents. While it is possible to observe trends without having samples made up of the same

---

<sup>37</sup> It is completely reasonable from a common sense perspective to assume that some of the same students are participating in multiple waves of the survey. However, because it is not possible to track these students between the waves, it is not possible to make the assumption statistically that they are the same. In order to reduce the bias and ensure the most conservative estimate of trends, all samples are assumed to be independent.

respondents, the use of the OLS model assumes causality; to assume that the behavior of a potentially different set of students at a previous time impacts the behavior at the current time is statistically risky. Given that this is only the middle of a several year evaluation of the social norms campaign, it was determined that being conservative at this point in time was the most beneficial. Future evaluations will revisit the possibility of a several stage model that includes data from previous time periods. Future evaluations will also be able to examine these results using hierarchical modeling; currently, the small amount of schools involved in this analysis prohibits it.

The next section will detail both the changes in outcomes over time and the results of exposure on student behavior and beliefs.

## ***Differences Between Time Periods***

### *Scale Outcomes*

As described in Part I of this chapter, several scales were created using the data from the middle school survey (please see previous section for a detailed description). These scales serve to measure both student ATOD use and student beliefs about others' ATOD use during the school year prior to survey administration. Individual scale statistics for each of the scales were calculated; from there, significance testing was undertaken to examine any differences that occurred between the three time periods. Table 32 reports the mean and Cronbach's alpha levels for each of the scales for all three waves of data collection.

Table 33: ATOD Scale Outcomes, by Time Period

	Time 1 Fall 2006			Time 2 Spring 2007			Time 3 Fall 2007		
	N	Mean	Alpha	N	Mean	Alpha	N	Mean	Alpha
<b>Classroom Environment</b> (higher values indicate positive climate)	2158	2.83	0.70	1604	2.80	0.73	985	2.82	0.74
<b>Perceptions of Others' Tobacco Use</b> (higher values indicate more tobacco use)	2127	3.29	0.87	1587	3.26	0.88	978	3.21	0.88
<b>Perceptions of Others' Alcohol Use</b> (higher values indicate more alcohol use)	2133	3.19	0.89	1584	3.32	0.90	976	3.17	0.92
<b>Perceptions of Others' Marijuana Use</b> (higher values indicate more marijuana use)	2120	2.69	0.91	1575	2.75	0.92	979	2.55	0.93
<b>Perceptions of Others' Illicit Drug Use</b> (higher values indicate more illicit drug use)	2111	1.68	0.91	1575	1.66	0.92	971	1.56	0.93
<b>Negative Consequences of Drinking*</b> (higher values indicate more negative consequences have occurred)	923	0.20	0.84	715	0.20	0.85	419	0.20	0.87
<b>Smoking Resistance Skills</b> (higher values indicate more resistance skills utilized)	2174	0.40	0.66	1355	0.32	0.67	988	0.43	0.67
<b>Drinking Resistance Skills</b> (higher values indicate more resistance skills utilized)	2174	0.32	0.58	1351	0.25	0.56	988	0.33	0.55

\*Includes only respondents who have drunk in the last 12 months

Independent samples t-tests used to measure the differences between scale values at Times 1, 2, and 3 revealed three interesting and consistent patterns. The first was the students drinking and smoking resistance skills increased between Times 1 and 3 (T1/T3:  $p < .000$ ). Continued participation in the social norms campaign appears to help strengthen the protective factor of resistance, presumably given students more skills to help them refuse substances. The second pattern was that students' perceptions of others' marijuana use and illicit drug use decreased between the three time periods, with the strongest decrease between Times 1 and 3 (T1/T3:  $p < .05$ ). Because the use of both marijuana and illicit drugs is low among most teenage students, these were two messages commonly used by the schools when implementing their social norms campaign. These results suggest that students indeed were internalizing the norms as they were being shared.

The third pattern is not as reassuring, although should not at this time be cause for alarm. An examination of the scale means in Table 33 shows that for many of the variables, increases in a negative direction (i.e. outcomes became worse) occurred between Times 1 and 2. After this increase, however, outcomes then decreased during Time 3, either to previous Time 1 levels or to levels even lower than Time 1. One explanation of this, which is more fully described in the reports on the 2006-2007 school years (see Connell, et al. 2007b; Flower 2007), is that during the second survey administration, some other factors were at work. An examination of survey administration during Time 2 shows that two of the schools surveyed students after the annual high school prom.<sup>38</sup> Research suggests that high school students may be more likely to engage in substance using during prom time; therefore, these spikes in self-reported behaviors and perceptions of others' behaviors are most likely related to the timing of the survey. Regardless, this still brings out an important point; the social norms campaign may offer enough protection against long standing traditions in a school, at least not in the beginning. While social norms campaigns are being implemented and the

---

<sup>38</sup> HS-B and HS-C both surveyed after an annual prom event during Time 2 survey administration.

messages and behaviors are becoming school mores, it may be necessary to continue to supplement the campaigns with other anti-ATOD messages during high risk time periods.

### *Behavioral Outcomes*

In order to be consistent with the findings reported for the 2006-2007 school year, several behavioral and experiential variables were examined between the three time periods. The ones reported here were chosen for their consistency with prior reports as well as their potential for policy implications. Table 34 shows the percent of respondents who answered a particular question. Questions include respondent's reporting of ATOD (smoking, drinking, and marijuana use) use in the past 30 days, drinking behaviors at parties (how often consuming alcohol and how much alcohol consumed), perceptions of other students' drinking behavior at parties, perceptions of peers' abstinence, and information about self-reported and perceptual drinking and driving behaviors. Several patterns emerge.

One result of these data is that only one variable shows a significant decrease between Time periods 1 and 3. Students show a decrease in their perceptions of peers' drinking and driving behaviors, with students at Time 3 reporting that fewer students drive with a drinking driver than at the other times (T1/T3:  $p < .01$ ); an examination of the mean values, however, suggests that while this difference may be significant, it is not large.

In keeping with the trends from the scale outcomes, however, it does seem that many of the variables actually increase between Times 1 and 2. Further analysis shows that the variables then decrease between Times 2 and 3. The result of this is very little net effect between Times 1 and 3 but a clear pattern of evidence that both behaviors and perceptions are increasing during the Spring 2007 semester. As mentioned previously, this is most likely related to the timing of prom and other end of school activities around the time of the survey administration during Time 2. This pattern is

most evident in the questions pertaining to the average amount of alcohol consumed at parties, both by individual respondents and by their friends and fellow students in their grade. These trends are strongest for self-reported number of drinks consumed at a party (T1/T2 increase:  $p < .01$ ; T2/T3 decrease:  $p < .01$ ); the number of drinks friends consume at a party (T1/T2 increase:  $p < .001$ ; T2/T3 decrease:  $p < .05$ ); the number of drinks students in one's grade consume at a party (T1/T2 increase:  $p < .01$ ; T2/T3 decrease:  $p < .05$ ); and, the number of drinks males in one's grade consume at a party (T1/T2 increase:  $p < .05$ ; T2/T3 decrease:  $p < .05$ ). The same pattern also emerges with self-reported drinking at parties in the last 12 months, with respondents reporting more drinking at Time 2 and less drinking (similar to Time 1 levels) at Time 3 (T1/T2 increase:  $p < .01$ ; T2/T3 decrease:  $p < .01$ ).

A closer examination of Table 34 also shows that there is much evidence of positive behaviors as well. Percentages of students reporting behaviors are reported, along with the average number of days students' report using a substance in the last 30 days. As these numbers make clear, the majority of students in Cohort 1 high schools are completely abstaining from ATOD use. The percentage of students who abstain from tobacco and marijuana use holds steady at approximately 85% between Times 1 and 3 (as with the other trends, increases during Time 2 are most likely related to end of the year festivities that include risky behavior). Alcohol rates also hold steady with approximately 60% of students abstaining. These numbers are consistent, offering evidence for the social norms tenet that the majority of youth really are engaging in pro-social activities and do not exhibit risky behaviors.

Table 34: ATOD Behavioral Outcomes, by Time Period

Behavioral Outcomes			Time 1 Fall 2006			Time 2 Spring 2007			Time 3 Fall 2007		
	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>%</i>	<i>N</i>	<i>Mean</i>	<i>%</i>	<i>N</i>	<i>Mean</i>	<i>%</i>
<b>During the past 30 days, on how many days did you...</b>											
Use tobacco (including cigarettes, cigars, and chewing tobacco)	0	30	2143	1.9	14	1589	2.7	17.3	979	2.3	14.1
Use alcohol (not counting just a few sips in a family or religious gathering)	0	30	2145	1.6	35	1592	2.0	38.1	979	1.7	35.6
Use marijuana	0	30	2138	1.3	14	1588	1.7	17.6	977	1.5	14.4
<b>How often did you consume alcohol at a party in the last 12 months?</b>	0	3	2165	0.8	51	1593	0.9	50.9	981	0.8	50.9
<b>Overall, what percentage of students at your grade level do you think...</b>											
Use NO tobacco products at all	0	100	2110	49.8		1566	50.4		965	48.6	
Consume NO alcoholic beverages at all	0	100	2123	33.9		1567	33.4		967	34.5	
Have been drunk on at least one occasion in the last 7 days	0	100	2125	39.6		1565	43.7		962	42.2	
<b>How many alcoholic drinks, if any, do you typically consume at parties or social occasions? (0 to 7+)</b>	0	7	2157	1.8	51	1587	2.1	53.4	983	1.8	51.2
<b>How many alcoholic drinks, if any, do you think each of the following students on average typically consume at parties or social occasions? (0 to 7+)</b>											
Your friends...	0	7	2145	2.7		1584	3.0		981	2.8	
Students in your grade...	0	7	2136	3.9		1571	4.1		978	3.9	
Males in your grade...	0	7	2129	4.4		1573	4.5		978	4.4	
Females in your grade...	0	7	2122	3.6		1578	3.8		977	3.7	
High school juniors and seniors	0	7	2120	4.8		1571	4.7		977	4.7	
School athletes	0	7	2124	3.1		1580	3.4		977	3.2	

Behavioral Outcomes, con't			Time 1 Fall 2006			Time 2 Spring 2007			Time 3 Fall 2007		
	<i>Min</i>	<i>Max</i>	<i>N</i>	<i>Mean</i>	<i>%</i>	<i>N</i>	<i>Mean</i>	<i>%</i>	<i>N</i>	<i>Mean</i>	<i>%</i>
Have ridden during the past last year as a passenger in a motor vehicle with a driver who drank alcohol just before or while driving	0	3	2139	0.61	32	1564	0.6	31.0	977	0.6	31.0
Overall, what percentage of your peers do you think have ridden during the past year as a passenger in a motor vehicle with a driver who drank alcohol just before or while driving	0	100	2119	39.4		1557	39.4		973	39.5	



## ***Regression Results***

The regression results reported here examine the impact that exposure to the social norms campaign, net of individual behavior and beliefs, had on a series of outcomes. The two variables used in these models that have not been described previously are the self-reported extent of exposure to the social norms campaign and the sum total of social norms campaign events/messages reported by respondents. Students were asked to report how many times they had seen a social norms message related to bullying in their school; approximately 80 percent (80.4%) of respondents had seen the message at least once, while more than half (57.1%) reported seeing the campaign more than twice. On average, students reported that they saw or experienced just over five (mean = 5.2; SD = 3.3) of the eleven different campaign options.<sup>39</sup>

Each of the models reported here look at a different outcome while controlling for demographic characteristics, school environment, exposure to the social norms campaign, and related individual behaviors and beliefs. All of the models also include control variables for the school of interest (HS-G is the reference group because it has the largest sample size). Unlike the previous analysis, which utilizes clustered regression to control for potential differences between schools, these models are traditional OLS models. The reason for the difference is due to the small number of schools involved in the Cohort 1 analyses compared to the previous analyses combining the two cohorts; both options yield similarly accurate results. Only the final model is shown in all cases; these models showed themselves to have the best goodness of fit and were robust.

---

<sup>39</sup> The eleven options available to students were having seen and/or heard the messages on posters at school, school newsletters, computer screen savers, school webpages, other print media, on school TV, over announcements on the PA system, through assemblies at school, or by talking to teachers, other students, or parents.

### *Negative Consequences of Drinking*

The first model looks at the impact that exposure to the social norms campaign has on the likelihood that a student will experience negative consequences while drinking<sup>40</sup>. These negative consequences can range from the temporary, like inability to concentrate and being sick, to the serious, such as police contact or hospitalization. Reported in Table 35, Model 1 shows that the strongest protective factors against negative consequences is having a higher GPA; those students are less likely to experience negative consequences, even when they do drink. Minority students are also less likely to experience negative consequences while drinking.

Exposure does not act as a protective factor in this model. One potential possibility for this is that students do not change their behavior as quickly as they change their beliefs; therefore, even if a student recognizes that negative consequences are not enjoyable and that there are alternatives to drinking, he may not be able to act on those beliefs immediately. Indeed, the only other significant predictor in this model is attitudes towards alcohol, with those students having more positive attitudes more likely to experience negative consequences of drinking; presumably, these students also drink more frequently and drink higher amounts.

---

<sup>40</sup> This model is only for those students who reported drinking in the last 12 months; if a student did not drink, they could not experience negative consequences.

**Table 35: ATOD Results – Negative Consequences of Drinking**

<b>Model HS-1: Negative Consequences</b>	
<i>Independent Variable</i>	<i>β(S.E.)</i>
Age	.003 (.009)
White Student	-.059 (.029)*
Male Student	.028 (.022)
GPA	-.059 (.016)***
HS-A	.020 (.028)
HS-B	.013 (.039)
HS-C	.002 (.036)
HS-D	.201 (.067)**
Exposure	.008 (.005)
School Environment	-.001 (.027)
Attitudes towards Alcohol	.024 (.010)*
Constant	.272 (.170)
<b>Model Summary</b>	
R-squared	0.088

\*\*\*p<.001, \*\*p<.01, \*p<.05

*Behavioral Outcomes*

Table 36 examines the results of Models 2 and 3, which predict the relationship between various control variables and the behavioral outcomes of having used tobacco and alcohol in the last 30 days. The one consistent pattern that emerges is that students’ attitudes towards substance use are a strong predictor of behavior. Students who have more positive attitudes towards tobacco use are more likely to use tobacco; the same can be said about students’ attitudes towards alcohol use and their drinking behavior. Older students are also more likely to smoke, as are white students. Neither of these relationships are significant for alcohol use, however.

**Table 36: ATOD Results – Behavioral Outcomes**

	<b>Model HS-2: Tobacco Use</b>		<b>Model HS-3: Alcohol Use</b>
<i>Independent Variable</i>	$\beta(S.E.)$	<i>Independent Variable</i>	$\beta(S.E.)$
Age	.357 (.160)*	Age	.033 (.116)
White Student	1.577 (.481)***	White Student	-.205 (.347)
Male Student	.067 (.392)	Male Student	.079 (.281)
GPA	-.645 (.328)*	GPA	-.358 (.225)
HS-A	-.828 (.535)	HS-A	.082 (.385)
HS-B	-.836 (.602)	HS-B	-.194 (.422)
HS-C	-.754 (.611)	HS-C	-.173 (.437)
HS-D	7.084 (1.318)***	HS-D	4.677 (.945)***
Exposure	.053 (.095)	Exposure	-.030 (.069)
School Environment	-.478 (.485)	School Environment	.059 (.340)
Attitudes towards Tobacco	5.245 (.306)***	Attitudes towards Alcohol	1.327 (.126)***
Percep. Of Others' Tobacco	.510 (.136)***	Percep. Of Others' Alcohol	.187 (.106)
Constant	-3.981 (2.993)	Constant	-.257 (2.112)
<b>Model Summary</b>		<b>Model Summary</b>	
R-squared	0.368	R-squared	0.155

\*\*\*p<.001, \*\*p<.01, \*p<.05

*Perceptual Outcomes*

Table 37A shows the results for two of the perceptual models: perceptions of others' tobacco use and others' alcohol use. Several patterns are evident. The first is that older students are more likely to believe that their peers are using substances; this could be due to the fact that most students begin using substances as they get older. Therefore, these perceptions could be based in reality. This could also be due to the fact that as students get older, they experiment more with substances; their perceptions are then a reflection of their own behavior. Indeed, one's own tobacco use in the last 30 days is related to an increase in one's perceptions of others' use (Model 4). This relationship is not as strong for alcohol, suggesting that alcohol use as a norm may be more pervasive than tobacco use (Model 5). It may take more time for a social norms campaign to have a

long term impact on something as ingrained in popular culture as alcohol use. In both cases, however, a student's own beliefs about substance use are directly related to a perception that others are also using substances at higher rates (Models 4 and 5).

School environment only acts as a protective factor for tobacco use, again suggesting that alcohol use may be related to different mechanisms (Model 4). Students with lower perceptions of positive school environment have higher perceptions of peers' tobacco use. Student GPA also continues to act as a protective factor, with students reporting higher grade point averages also reporting lower perceptions of peer substance use (Models 4 and 5).

Exposure to the social norms campaigns also leads to higher perceptions of peers' substance use. As discussed in previous evaluation reports, it is possible that the social norms campaign may initially sensitize youth to the issues of ATOD within their school, so that they are more likely to notice and report their own use and their perceptions of others' use at higher levels (see Connell, et al. 2007b).

**Table 37A: ATOD Results – Perceptual Outcomes for Tobacco and Alcohol**

<b>Model HS-4: Perceptions of Tobacco Use</b>		<b>Model HS-5: Perceptions of Alcohol Use</b>	
<i>Independent Variable</i>	$\beta(S.E.)$	<i>Independent Variable</i>	$\beta(S.E.)$
Age	.090 (.038)*	Age	0.152 (.036)***
White Student	-.222 (.116)	White Student	-.177 (.107)
Male Student	-.260 (.094)**	Male Student	-.154 (.087)
GPA	-.477 (.077)***	GPA	-.258 (.069)***
HS-A	-.211 (.129)	HS-A	.105 (.119)
HS-B	-1.049 (.141)***	HS-B	-.364 (.130)
HS-C	-.585 (.146)***	HS-C	-.227 (.135)
HS-D	.406 (.321)	HS-D	-.156 (.297)
Exposure	.088 (.023)***	Exposure	.086 (.021)***
School Environment	-.309 (.116)**	School Environment	-.180 (.105)
Attitudes towards Tobacco	.298 (.084)***	Attitudes towards Alcohol	.219 (.041)***
Tobacco Use Last 30 Days	.029 (.008)***	Alcohol Use Last 30 Days	.018 (.010)
Constant	4.407 (.705)***	Constant	1.775 (.652)**
<b>Model Summary</b>		<b>Model Summary</b>	
R-squared	0.241	R-squared	0.143

\*\*\*p<.001, \*\*p<.01, \*p<.05

Table 37B provides the models for the last two perceptual variables under examination: students’ reports of what percent of their peers abstain from tobacco and alcohol use. These models provide the strongest evidence to date in favor of the social norms campaign. Students who report higher levels of exposure to the social norms campaign, as measured by seeing or participating in several of the social norms events, believe that more of their peers abstain from both tobacco (Model 6) and alcohol (Model 7) use. This suggests that not only is repetition important for getting across the social norms messages, but so is variety.

Models 6 and 7 also suggest that the school environment is another key element in how students perceive their peers’ behaviors. Students reporting more positive school environments also report a higher level of abstaining peers. Students who appear to have a healthy relationship with

school most likely are also abstaining from risky behaviors; as such, they may be assuming that their peers would also abstain.

It is interesting to note that perceptions of abstaining from tobacco use are not related to any of the behavioral or other perceptual outcomes; the majority of the explanatory power is related to the school and exposure variables, although being a male and having better grades both predict that students think fewer peers engage in substance use. Perceptions of peers' abstaining from alcohol use, however, are also related to one's own behavior and attitudes. This continues to lend support to the presumption that it may be necessary to examine a different causal process for different substances.

**Table 38B: ATOD Results – Perceptual Outcomes for NOT Using Tobacco and Alcohol**

<i>Independent Variable</i>	<b>Model HS-6: % No Tobacco Use</b>		<i>Independent Variable</i>	<b>Model HS-7: % No Alcohol Use</b>	
	$\beta$ (S.E.)			$\beta$ (S.E.)	
Age	-0.080 (.637)		Age	-2.424 (.629)***	
White Student	1.810 (1.894)		White Student	1.075 (1.856)	
Male Student	3.879 (1.546)**		Male Student	3.351 (1.513)*	
GPA	3.369 (1.312)**		GPA	2.357 (1.220)*	
HS-A	.779 (2.105)		HS-A	-.017 (2.061)	
HS-B	8.380 (2.351)***		HS-B	5.001 (2.257)*	
HS-C	-3.631 (2.436)		HS-C	-.824 (2.371)	
HS-D	-22.113 (5.686)***		HS-D	-9.926 (5.582)	
Exposure	-.144 (.376)		Exposure	-.613 (.370)	
Sum of Exposure	.810 (.235)***		Sum of Exposure	.791 (.230)***	
School Environment	7.001 (1.888)***		School Environment	6.549 (1.809)***	
Attitudes towards Tobacco	-1.128 (1.389)		Attitudes towards Alcohol	-3.734 (.711)***	
Tobacco Use Last 30 Days	-.033 (.130)		Alcohol Use Last 30 Days	-.254 (.187)	
Percep. Of Others' Tobacco	-6.441 (.541)		Percep. Of Others' Alcohol	-4.191 (.586)***	
Constant	33.684 (11.731)**		Constant	60.624 (11.238)***	
<b>Model Summary</b>			<b>Model Summary</b>		
R-squared	0.319		R-squared	0.234	

\*\*\*p<.001, \*\*p<.01, \*p<.05

Overall, these results indicate that the social norms campaign is having an impact on student beliefs, although that impact may be mediated by the substance involved. Tobacco use and alcohol use, while potentially similar on the surface, do not share as many patterns as would be theoretically expected. Therefore, it may be necessary for future research to try to detangle the mechanisms that shape responses to each activity.

It is also clear that attitudes may be changing before behaviors. This is encouraging news for the social norms campaign, as one goal of such a program is to help change student attitudes. Furthermore, once student attitudes are changed, it increases the possibility that changes in student behaviors will follow. In this case, substance use can be decreased if social norms campaigns can continue to impart pro-social norms on the students involved.



## **Chapter VII: Recommendations and Conclusion**

### ***Recommendations***

#### *Monitor Implementation Rigorously*

The process evaluation was largely hindered by non-compliance with reporting requirements. Even after adjusting for the new schools who began their programs in earnest after the first reporting period (defined as September to December), only four high schools and none of the middle schools reported for every period for which there should have been a report. Nonetheless, by combining the information contained within the school activity reports submitted, 13 of the 15 middle schools and all of the high schools provided measures of implementation fidelity. When those data were examined, however, there were several key standards where neither the high schools nor middle schools met the target. The activity reports indicated this with regard to conducting steering committee meetings and the placement of posters in the school. These two goals are particularly important because the benchmark was 100% for each. These results may be explained, at least in part, by the lack of consistent submission of the activity and campaign coordinators possibly forgetting to report aspects of the campaign. This would be particularly salient if only one report was submitted during the school year (as was the case with the majority of middle schools and many high schools). The lack of activity, particular with regard to posters, may be because several of the schools did not survey in time to put up posters. Also, the poor response rate was also likely related to the fact that evaluator Dr. Flower did not process and report on the school activity reports on a routine basis. This is an oversight that future evaluators should ensure is not repeated; perhaps if feedback had been provided to the schools on a more timely basis more may have been in compliance with both reporting and with meeting the standard goals.

The continual monitoring of implementation data will also have the benefit of allowing future evaluations to analyze the relationship between process measures and study outcomes. As mentioned previously, program success is also highly related to program implementation; in order to help measure program success more accurately, it is necessary to know exactly what schools are doing in order to implement their social norms campaigns. A program like the social norms campaign is also one that is well designed for replication, both in terms of where campaigns are implemented and what kinds of campaigns are implemented. Strong implementation measures allow programs to design campaigns in such a way that both resource allocation and efficacy are maximized.

As mentioned previously, the implementation data collected from this year will also be used in future evaluations. Due to the way that implementation data were collected for the 2006-2007 school year, it was not possible to include prior implementation in the current models<sup>41</sup>. This will be rectified in future evaluations, so long as schools are able to continue providing the necessary data.

#### *Obtain Missing Race Data for Cohort 2 Schools*

It is notable that amongst the two cohorts there was a major shift in the racial demographic profile of respondents from cohort 1 to cohort 2. This is notable because this a consequence of one or both of the following reasons: 1) the sample of students in the new schools in social norms project are fundamentally different, demographically, than the students in cohort 1 and/or 2) that the reason for this major shift from Cohort 1 to Cohort 2 is a result of the bias created when Dr. Perkins opted to exclude the race variables in their entirety from four middle schools and four high school datasets before submission of these files to CAS. We acknowledge that it is a rare event, if not a non-existent one, where a database has every variable fully populated. This is because in

---

<sup>41</sup> As mentioned previously, implementation data were collected AFTER survey data were collected. It is not possible to measure the impact of variables that occur after the outcome of interest.

every survey there is information missing either because of the respondent's oversight or his/her deliberate decision not to answer the question. Sometimes there is a malfunction in the equipment or human error in processing the information, also resulting in missing data. In both cases, the data that are missing are generally spread out among the various survey respondents so that the loss of one piece of information from one case or another will not impact the whole. In other words, if data are missing due to some random event (e.g., not deliberately nor systematically), then the data are simply missing, and while not ideal, does not generate a great deal of concern. This is not the case in the present situation – the data are missing systematically and thus create the possibility of difficulties when analyzing these data both in the present and the future. While Dr. Perkin's concerns about maintaining the anonymity of the survey respondents are valid, the decision was not made in conjunction with the current evaluators. Perhaps an arrangement can be brokered to obtain the data from Dr. Perkins for these eight cohort 2 schools for use, and if necessary, with an agreement to omit the race in any individual school level analysis that could potentially identify the respondent. Given the differences in the samples from Cohort 1 to Cohort 2, it is very important that these data be obtained and included in any future analysis, particularly with respect to the trend analysis in the coming years.

#### *Obtain Comparison Schools*

Prior evaluation reports (see Connell, et al. 2007b and Flower 2007) indicated the need for more advanced survey designs. One current flaw in the current data collection technique is that it is not possible to know which respondents, if any, completed the survey at more than one point in time. As a result, the previous evaluation reports recommended that a matched sample design be implemented. At this point in time, however, the survey has been administered three times. While future administrations are still being planned, a matched design moving forward would not be

useful, as it would require follow-up on the same group of students for several more time periods. Therefore, the evaluators recommend that the New Jersey Department of Education and the Center for Addiction Studies at Rowan University investigate the possibility of including comparison schools in future study years. The use of comparison schools allows for a more robust test of the social norms campaign without the resource intensive matched sample. A matched sample not only requires more advanced survey techniques, but also potentially is problematic because of the fact that many parents are nervous about releasing personal information on their children. By using comparison schools, both of these problems can be avoided.

Comparison schools should be schools that are similar to those already contained in the study; preferably, demographic composition, school level variables, and neighborhood level status should all be closely aligned. Students in comparison schools will be given the survey related to perceptions and behaviors, but no social norms campaign will be implemented. Follow-up surveys are then given to both those schools who have implemented a social norms campaign and those who have not. Analyses can be conducted to determine whether student behaviors and perceptions are more likely to change in those schools implementing a social norms campaign. Differences in behaviors and other outcomes between the two groups would be attributed to the social norms campaign, so long as other predictor values are the same (or similar) between the two sets of schools.

The inclusion of a comparison schools study can serve to further bolster the claims of efficacy of the social norms campaign. The use of comparison schools is also particularly important in light of the fact that the adolescent years are difficult for most students, even those that are not engaging in risky and anti-social behavior. As such, even the use of a program designed to decrease such behaviors, like the social norms campaign, may not change the normal trajectory of adolescence in a way that is immediately obvious. Analysis that uses comparison schools would

allow evaluators to determine whether the social norms campaign in fact acts as a protective factor, in light of the fact that many students this age would be expected to potentially exhibit worse outcomes over time. If schools implementing the social norms campaign show that students are exhibiting risky behaviors at a slower rate than comparison schools, it would be another piece of evidence in favor of continuing implementation of the social norms campaign.

Another benefit of a comparison study is that the resources for such a study are mostly in place. No complicated data collection procedures need be implemented and there is no risk to the students who are participating (whereas there is a small risk to those who participate in a matched sample study). The survey is already designed to be taken by any student with access to a computer lab, parental consents are available, and many schools have already had positive experiences with the social norms campaign. Therefore, the evaluators recommend that schools be approached for inclusion in the comparison study; those schools that agree to participate for one year could then be given the tools to implement the social norms campaign in the second year.

### *Focus Group Studies*

Despite the fact that many efforts are being made to collect quality implementation data, one piece of data that is still missing is students' perceptions of the campaign itself. While students report on exposure to the various pro-social messages, both in terms of amount and description, little is known about what happens when students come across these pro-social messages in schools. Even questions about how students are exposed to the campaign do not take into consideration the direction of this exposure: is it positive or negative? One way to get at this important question is through the use of focus group studies, where small groups of students can be assembled and asked about their personal experiences with the social norms campaign. Focus groups offer much more detailed information than is possible to obtain in a survey and they will help guide both those

implementing the program and those evaluating the program to a better understanding of how students are processing social norms messages.

The evaluators recommend that focus group studies be conducted in both Cohort 1 and Cohort 2 schools. Students who completed the survey from Cohort 1 schools now have an institutional history of social norms messages by which to guide them; speaking to them in small groups will help further explicate both their experiences with and opinions about the campaign. Students in Cohort 2 schools are still relatively new to the campaign; focus groups with these students will help ensure that as the campaigns move forward, they are utilizing messages and techniques that will have the greatest potential.

The use of focus groups to help understand the process by which students view the campaign will also help in terms of replication. Because this study is on-going, it is important to continually be incorporating findings into future endeavors. A focus group offers this opportunity in a relatively timely manner, as the results of these meetings can be immediately utilized in current social norms campaigns. Because the small nature of these groups does not allow for robust statistical techniques, it is only important that efforts are made to ensure that the demographic makeup of students who participate is similar to that of the demographic makeup within the schools involved.

#### *A Variety of Campaign Approaches*

One of the more consistent findings throughout the analysis of the impacts of exposure on outcomes was that students appeared to react more positively when they had experienced a variety of campaign approaches. At least eleven different approaches to implementation, grouped into the six categories described in Chapter 1, were undertaken during the social norms campaigns. Students reporting more experiences reported healthier outcomes for both the middle school and the high

school studies. Future programmatic goals, therefore, should not only focus on the quality of implementation, but on the variety as well. It is very possible that as students go through their day at school, they become immune to the social norms messages that are being presented. When these messages are presented in a variety of ways, however, students may be more inclined to notice them and pay attention. The results of these analyses favor utilizing a myriad of approaches to distributing social norms messages. Given the fact that many students are technologically adept and are involved in a variety of school-based interactions that take place outside of the school building, new approaches should be applied to message dissemination. School and program administrators should be working together to think of innovative new ways to help spread social norms messages in the future.

### ***Conclusion***

The New Jersey Department of Education and the Center for Addiction Studies at Rowan University have been planning and implementing social norms campaigns in New Jersey middle schools and high schools since 2005. The results reported here offer both a snap-shot view of student behavior in those schools involved during the 2007-2008 school year while also taking advantage of the unique opportunity to look at trend data over a three wave period for a small segment of schools who have been participating since program inception. These results indicate that the social norms campaign is having a positive impact over the course of its implementation.

These results suggest that student attitudes and perceptions are closely related to their behaviors. Furthermore, trend analysis suggests that attitudes and perceptions are changing in positive directions over time. OLS models including campaign exposure for Cohort 1 schools are consistent with evidence that the social norms campaign is helping to change those attitudes. As

attitudes change, behaviors should also change, albeit at a slower pace. Such findings are indicative of the need for the continuation of a social norms campaign to bring behaviors in line with attitudes.

These results also suggest that school environment over time is increasing in those schools who are involved in the social norms campaign; furthermore, a positive school climate is related to positive student outcomes. Whether the change in school environment is related to the positive messages of the campaign or to the efforts of faculty, staff, and administrators within the schools, the change is significant. Efforts should be made through the collection of implementation data to parcel out the causal mechanisms of this change, in order to help other schools learn how to replicate such a positive finding.

These findings also suggest that school environment is not the only school level variable that matters. Analyses reported in Part I in Chapters 2 and 3 suggest that school level factors are important in understanding the relationship between student behaviors and beliefs. In larger schools, for instance, students tend to believe that bullying behaviors are more acceptable; this could be related to the fact that students may not be as supervised when there are so many of them in one place. This could also be because students in large schools may feel invisible or unable to connect to the people around them. Schools can take steps to find other ways to help promote positive school environments and triangulate approaches so that all students can be impacted. These findings also suggest that students' behaviors may be harder to change in schools where the norms are more enmeshed in the population; for instance, schools with a higher proportion of smokers are more likely to have students who report tobacco use. As a result, the social norms campaign can be implemented in ways to help schools deal with specific problems; after all, norms are different between schools and solutions can be too.

Despite evidence of success, however, one finding stands out; high school students are still engaging in risky behaviors during times of celebration, such as prom and graduation. The results



here point to the need of ensuring that schools are also utilizing other approaches to deal with high-risk situations. Because the social norms approaches are in their infancy in these schools, they may not yet have the momentum necessary to compete with pro-ATOD use messages that happen during these risky times. The social norms campaign is only one tool to help change student behaviors and attitudes; other tools may be more useful for specialized events like prom and homecoming. Schools should also consider a targeted campaign around these high risk times, specifically aimed at ensuring that students are aware that the social norms messages they are hearing are for all of the time.

Overall, there is much evidence that the social norms campaign is showing positive outcomes. The continued implementation of the campaign, coupled with the collection of quality implementation data and the incorporation of some of the recommendations discussed in this report, should continue to have a positive impact on students' perceptions and their behaviors over time. Evaluation of this project should continue, as longitudinal analysis is still in the beginning stages and much can be learned as the social norms campaigns continue to be utilized.

## References

- Allison, P.D. (1999). Multiple Regression: A Primer Thousand Oaks, CA: Pine Forge Press.
- Connell, N.M., P.M. Negro, D.M. McGinty., & A.N. Pearce (2007a). New Jersey Department of Education and Rowan University Center for Addiction Studies Social Norms Project 2005-2007
- \_\_\_\_\_. (2007b). New Jersey Department of Education and Rowan University Center for Addiction Studies Social Norms Project Updated Report 2005-2007
- Far, J.M., & J.A. Miller (2003). The Small Groups Norms-Challenging Model. Chapter 7 in H.W. Perkins (Ed). The Social Norms Approach to Preventing School and College Age Substance Abuse: A Handbook for Educators, Counselors, Clinicians, San Francisco, Jossey-Bass.
- Flower S.M. (2007). New Jersey Department of Education and Rowan University Center for Addiction Studies Social Norms Project External Evaluator Report 2005-2007
- Haines, MP, Barker, GP & Rice, R (2003). Using Social Norms to Reduce Alcohol and Tobacco Use in Two Midwestern High Schools. Chapter 14 in HW Perkins (Ed). The Social Norms Approach to Preventing School and College Age Substance Abuse: A Handbook for Educators, Counselors, Clinicians, San Francisco, Jossey-Bass.
- Kerlinger, F.N. & Lee, H.B. (2000). Foundations of Behavioral Research, 4th Edition Fort Worth, TX: Harcourt College Publishers.
- LaMastro, R.A., & V. LaMastro (2007). Social Norms Campaigns at New Jersey State College and Universities 2006-2007. Glassboro: Rowan University
- Perkins, H. Wesley. (2004). Social Norms Campaigns at New Jersey Colleges and Universities. Glassboro: Rowan University
- Perkins, H. Wesley (Ed.). (2003). The Social Norms Approach to Preventing School and College Age Substance Abuse. San Francisco: Jossey-Bass.
- Perkins, HW & Craig, DA (2003). The Imaginary Lives of Peers: Patterns of Substance Use and Misperceptions of Norms Among Secondary School Students. Chapter 12 in HW Perkins (Ed). The Social Norms Approach to Preventing School and College Age Substance Abuse: A Handbook for Educators, Counselors, Clinicians, San Francisco, Jossey-Bass.
- Perkins, H. W. & V. LaMastro, V. (2006). Social Norms Campaigns at New Jersey Colleges and Universities. Glassboro: Rowan University
- U.S. Census Bureau (2000). <http://factfinder.census.gov> Retrieved September 10, 2008

## Appendix A: Implementation Standards

### Process Standards for Social Norms Campaigns 2007 to 2008

1. 100% of schools will put up posters containing social norms messages.
2. 100% of schools will attend at least one social norms training.
3. 100% of schools will have at least one Steering Committee Meeting.
4. 75% of Schools will implement at least two strategies (e.g., posters, contests, games, giveaways, assemblies and/or other activities) intended to disseminate social norms messages to students.
5. 50% of schools will communicate the social norms campaign to faculty members by discussing the campaign in faculty meetings at least once per reporting period (a total of three discussions over the school year).
6. 90% of campaign coordinators will report that in any given month, they had 2 “informal” conversations with other faculty members about the social norms campaign. “Informal” is defined as any conversation outside of a faculty meeting.
7. The administrator, SAC, or teacher responsible for coordinating the social norms campaign in 80% of schools will have one game each reporting period (for a total of three games over the school year) to be made available to faculty for use in classrooms. Games can either be created by the school, or the school can distribute games created by the Center for Addiction Studies.
8. 75% of campaign coordinators will report that they disseminated at least one game to 20% of the faculty members over the school year.
9. 100% of schools will send a letter advising parents of the project and seeking parental consent for student participation in the survey no later than 2 weeks prior to administration of the survey.
10. 30% of schools will report that they **actively** advised parents about the social norms campaign survey results and/or other campaign activities (**excluding the request for parental consent for student survey participation**) through parent/teacher conference events, Parent Teacher Association meetings, e-mails, or letters sent home and/or other media.
11. 90% of schools will report that they **passively** advised parents about the social norms campaign about the survey results and/or campaign activities through posting information on a website, school newsletter, or other media that provides a venue to communicate to parents.

12. 20% of schools will report they advised the community about the social norms campaign through article(s) in the newspaper, community meetings, and/or other media.

## Appendix B: School Activity Report

### Social Norms Campaign School Activity Report

For each answer, please fill in marks like this: ● not like this ✘ / ○ / ☑

Type of School

Middle School

High School

Name of School \_\_\_\_\_

Report Period  1<sup>st</sup> Period – Sept thru December (Due January 5)

2<sup>nd</sup> Period – January to March (Due April 5)

3<sup>rd</sup> Period – April to June (Due July 5)

Did your school send out letters to parents advising them of the social norms campaign and seeking their consent for their children to participate in the survey?

If Yes, When were these letters sent?

\_\_\_\_/\_\_\_\_/\_\_\_\_ (MM/DD/YY)

Over **this Reporting Period** ...where in the school are the social norms posters displayed (Select all that apply)

Hallway(s)

Cafeteria

In Classrooms

Administrative Areas (like the office, Guidance, etc.)

#### Thinking over This Reporting Period,

How many social norms campaign training sessions did you attend in this reporting period?

Never/  
None      Once      2 to 3  
Times      4 or More  
Times

                

How many Steering Committee Meetings did your school have (e.g., please include meetings conducted via telephone or by e-mail)?

                

How many times was the social norms campaign discussed at your school in a faculty meeting?

                

In any given month during this reporting period, on average, how many times would you say you had a conversation (outside of the faculty meeting) with another teacher or administrator at your school about the social norms campaign?

                

How many times were parents **actively/directly** advised or updated about the social norms campaign survey results and/or other campaign activities through parent/teacher conference events, Parent Teacher Association meetings, e-mails, or letters sent home and/or other media **OTHER than when the school sought parental consent**?

                

How many times were parents **passively/indirectly** advised about the social norms campaign survey results and/or campaign activities through the posting of information on a website, discussed in a school newsletter or through other media?

                

How many times was the social norms campaign discussed with or advertised to members of the community through articles in the newspaper, community meetings and/or other media?

**Social Norms Campaign School Activity Report**

For each answer, please fill in marks like this: ● not like this ✘/⊘/⊙

Over <u>this Reporting Period</u> , how often did your school utilize the following strategies (intended to disseminate the social norms messages to students)?	<u>Number of Times Strategies Used</u>				
	Never N/A	Once	2 to 3 Times	4 or 5 Times	6 or More Times
<b>Contests:</b> Defined as a school-wide approach to gather and disseminate campaign information; may win a prize (e.g., Football toss, poster or t-shirt message contests)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Games:</b> Defined as an individual approach, does not need to be offered to the whole school at once, may win small prize (e.g., paper puzzles) (Also See Below)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Prizes:</b> Defined as something won for <b>already knowing</b> the messages. Prizes may or may not have the social norms messages imprinted on them.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Giveaways:</b> Defined as incentives given “just because” to spread the messages. These <b>MUST</b> have the message imprinted somewhere on the item.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Other Types of Strategies</b>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>School-wide Assemblies or Large group gatherings</b> (Events involving all grade levels)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Assemblies or other large group gatherings</b> (Events that did not include all grades in the school)	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>If your school conducted large group events that did NOT include the entire school, advise how many grades of the school participated or attended in these events (Report and describe up to 3 events)</b>	<b>Less than One Grade</b>	<b>One Full grade</b>	<b>One to Two grades</b>	<b>Two to Three grades</b>	<b>Three or More (But fewer than All Grades)</b>
<b>Large Group Event #1</b> Describe _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Large Group Event #2</b> Describe _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Large Group Event #3</b> Describe _____	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Over this past reporting period ...**

How many games did you have available for teachers to use in their classrooms?

\_\_\_\_\_

How many teachers in your school asked you to give them a game to use in their classrooms?

\_\_\_\_\_

How many teachers asked you to give them **more than one type** of game to use in their classrooms?

\_\_\_\_\_

## Appendix C: The Middle School Survey

### Survey of Bullying at Your School

This is a survey about how students relate to each other. Sometimes students do things that may be called bullying. We want you to tell us about yourself and what you think about other students. You will not be asked to give your name – this is an anonymous survey. Questions that ask about other students are asking about students at your school. Please read each question carefully. There are no “right” or “wrong” answers – just give your best estimate. This survey is voluntary. If you do not wish to answer a question you may leave it blank and continue on.

1. At this school: (SA, A, D, SD)
  - a. I feel that other students care about me.
  - b. I feel that teachers care about me.
  - c. I am encouraged to help and respect other students.
  - d. I don't fit in.
  - e. Other students look to me to show them how to act.
  - f. It is easy to make friends here.
  - g. I can't do much to change bad things that happen here.
  - h. I am happy here most of the time.
  - i. Teachers don't really try to stop kids who are bullies.
2. During this school year have you ever felt bullied at school?
  - a. Never (NOTE: if you answer 'Never' here skip questions 3 and 4 below and go to question 5).
  - b. Rarely
  - c. Sometimes
  - d. Often
3. How would you describe the person (or persons) who bullied you most?
  - a. Gender/Number
    - i. One boy
    - ii. One girl
    - iii. A group of boys
    - iv. A group of girls
    - v. A group of boys and girls
  - b. Age
    - i. Older or mostly older than me
    - ii. About the same age as me
    - iii. Younger or mostly younger than me
  - c. Race
    - i. Same race or most were same race as me
    - ii. Different race or most were different race than me
4. During this school year have you done any of the things below to get away from a bully at school? Check all that apply.
  - a. Skipped recess or playground time.
  - b. Not gone to the bathroom.

- c. Not gone to lunch.
  - d. Pretended to be sick and went home.
  - e. Avoided a class.
  - f. Avoided a hallway.
  - g. Avoided some other place in school.
5. How often have you skipped school this year because you were afraid of other students hurting you or making fun of you?
- a. Never
  - b. Once
  - c. 2-3 times
  - d. 4 or more times
6. On a scale of one to ten, how safe do you feel at school?
- a. Very Threatened (1) to Very Safe (10)
7. In the last 30 days how often have the following things happened to you? And how often do you think they have happened to most other students at your school? (Not in last 30 days, Once, 2-3 time, 4 or more times)
- a. Pushing, shoving, hitting, kicking, hair pulling, or tripping...
    - i. Happened to me
    - ii. Happened to most other students at my school
  - b. Teasing in an unfriendly way...
    - i. Happened to me
    - ii. Happened to most other students at my school
  - c. Being called hurtful names...
    - i. Happened to me
    - ii. Happened to most other students at my school
  - d. Being excluded from a group to hurt feelings
    - i. Happened to me
    - ii. Happened to most other students at my school
  - e. Belongs being taken or damaged
    - i. Happened to me
    - ii. Happened to most other students at my school
  - f. Unkind story or rumor spread...
    - i. Happened to me
    - ii. Happened to most other students at my school
  - g. Threatened to be hurt...
    - i. Happened to me
    - ii. Happened to most other students at my school
8. In the last 30 days how often have you done the following things to another student? And how often do you think most other students have done these things at your school? (Not in last 30 days, Once, 2-3 time, 4 or more times)
- a. Pushing, shoving, hitting, kicking, hair pulling, or tripping...
    - i. I have do it
    - ii. Most other students have done it
  - b. Teasing in an unfriendly way...
    - i. I have do it
    - ii. Most other students have done it



- c. Calling hurtful names...
    - i. I have do it
    - ii. Most other students have done it
  - d. Excluding someone from a group to make them feel bad...
    - i. I have do it
    - ii. Most other students have done it
  - e. Taking or damaging someone else's belongings...
    - i. I have do it
    - ii. Most other students have done it
  - f. Spreading unkind stories or rumors about someone else...
    - i. I have do it
    - ii. Most other students have done it
  - g. Threatening to hurt someone...
    - i. I have do it
    - ii. Most other students have done it
  - h. Making someone do something they did not want to do...
    - i. I have do it
    - ii. Most other students have done it
9. In which places have any of these things happened to you during the school year? For each category a through g, check all places that apply or check 'has not happened'. Check all that apply. (Playground, Lunch room, Class room, Gym, Hallways, Bathroom, Bus, Email or phone message, Has not happened this year).
- a. Pushed, shoved, hit, kicked, hair pulled, or tripped
  - b. Belongings taken or damaged
  - c. Made to do something that you didn't want to
  - d. Teased in an unfriendly way
  - e. Called hurtful names
  - f. Unkind stories or rumors spread
  - g. Threatened about being hurt
10. Tell us if you agree or disagree with each of the following statements (a through d). Also, do you think most other students at your school would agree or disagree with these statements? (Strongly Agree, Agree, Disagree, Strongly Disagree)
- a. Students should not tease in a mean way, call others hurtful names, or spread unkind stories about other students.
    - i. My belief...
    - ii. I think most other students would...
  - b. Students should not shove, kick, hit, trip, or hair pull another student.
    - i. My belief...
    - ii. I think most other students would...
  - c. Students should not threaten to hit another student even if they don't actually hit the other student.
    - i. My belief...
    - ii. I think most other students would...

- d. Students should always try to be friendly with students who are different from themselves.
  - i. My belief...
  - ii. I think most other students would...
- 11. Who do you think students should tell if they or someone else are being bullied at school? And what do you think most other students say? Check all that apply.
  - a. I think students should...(check all that apply)
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
  - b. Most other students would say...(check all that apply)
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
- 12. Who do you think students should tell if they see a weapon (knife or gun) at school? And what would most other students say? Check all that apply.
  - a. I think students should...(check all that apply)
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
  - b. Most other students would say...(check all that apply)
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
- 13. What grade are you in?
  - a. 6

- b. 7
  - c. 8
  - d. 9
  - e. 10
  - f. 11
  - g. 12
14. How old are you?
- a. 9
  - b. 10
  - c. 11
  - d. 12
  - e. 13
  - f. 14
  - g. 15
  - h. 16
  - i. 17
  - j. 18
  - k. 19
  - l. 20
15. Are you a... (choose one)
- a. Boy
  - b. Girl
16. What is your race or ethnic origin? (Choose one.)
- a. American Indian/Alaskan Native
  - b. Asian
  - c. Black/African American
  - d. Hispanic/Latino
  - e. White/Caucasian
  - f. Other
17. Activities: Which of the following groups or activities have you participated in this school year? Check all that apply.
- a. School club or student government
  - b. School sport team
  - c. School chorus or band
  - d. Religious group
  - e. After-school program that takes place at the school (like homework club, hobby club, Boy Scouts, Girl Scouts, open gym, etc.)
  - f. After-school program in the community (like Boy Scouts, Girl Scouts, Boys and Girls Club, dance class, gymnastics class, community sports program, hobby club, etc.)
  - g. Part-time job (like baby sitting, newspaper delivery, lawn mowing, etc.)
18. What is the way that you get to and from school most often? Choose one.
- a. School bus
  - b. Walk or ride bike
  - c. I drive
  - d. Brother, sister, or friend drives

- e. Parent or another adult drives
  - f. City bus or train
19. What grade do you receive most often on your report card? Choose one.
- a. A
  - b. B
  - c. C
  - d. D
  - e. F
  - f. Excellent
  - g. Good
  - h. Satisfactory
  - i. Unsatisfactory
20. What is your weight and height?
- a. Weight in pounds
  - b. Height in feet and then inches
21. Which best describes what you think of your current weight? Choose one.
- a. I am...
    - i. Very underweight
    - ii. Somewhat underweight
    - iii. About right
    - iv. Somewhat overweight
    - v. Very overweight
22. What would you guess in the most typical (average) weight for boys and girls in your grade? Just give your best guess for each below.
- a. Most typical (average) weight for boys in your grade
    - i. Pounds
  - b. Most typical (average) weight for girls in your grade
    - i. Pounds

Thank you for taking the survey!

## Appendix D: Middle School Exposure Questions

1. What grade are you in?
  - a. 6
  - b. 7
  - c. 8
  - d. 9
  - e. 10
  - f. 11
  - g. 12
2. Are you a...
  - a. Boy
  - b. Girl
3. During this school year, how often have you seen or heard information about what most students or the majority do or think about bullying and unfriendly behaviors based on survey results from students in your school?
  - a. Never
  - b. Once
  - c. Twice
  - d. 3 – 4 times
  - e. 5 – 9 times
  - f. 10 – 19 times
  - g. 20 or more times
4. Where did you see or hear this survey information about what most do or think about bullying and other unfriendly behaviors? (Never, Once, More than Once).
  - a. On posters at school
  - b. In school newsletters
  - c. On a computer screen saver
  - d. On a school web page
  - e. On other printed materials (t-shirts, flyers, gift cards, giveaway items)
  - f. On a school TV or computer video
  - g. In school announcements over school PA (speaker system)
  - h. In school assemblies
  - i. From teachers in class
  - j. From talking with other students
  - k. From talking with parents

## Appendix E: Middle School Parental Consent Form

### PARENTAL CONSENT FORM

Dear Parents/Guardians:

This year your child's school will participate in a statewide social norms research survey being conducted with high school students in New Jersey. The primary purpose of this survey, based on the social norms approach, is to learn about youth alcohol use, knowledge, attitudes and behaviors. The survey is being sponsored by the Rowan University Center for Addiction Studies in partnership with the New Jersey Department of Education. The information obtained from this survey will be used to develop and evaluate programs for decreasing alcohol, tobacco and other drug use among New Jersey youth.

In approximately two weeks, all students in your child's class will be asked to fill out an on-line questionnaire about their attitudes toward and use of alcohol, tobacco and other drugs. Students may skip any question that they do not wish to answer and may stop participating in the survey at any point. While participation by all students helps obtain accurate information, please note that your child's participation in the survey is *voluntary*. No action will be taken against the school, you, or your child, if your child does not take part. Students not participating in the survey will be provided with an alternative activity by their school.

The survey has been designed to protect your child's privacy. Students will not put their names on the survey and no one will know how a particular student answers the questions. No one from the school will be allowed to look at your child's or any other student's completed survey.

If you choose, you are entitled to review a copy of the questionnaire prior to the survey date by contacting your child's school principal.

If you have any questions concerning this project, please contact the project coordinator at your school. If you have any specific questions about the survey, you may contact Dawn McGinty at Rowan University (856) 863 -2175 or the survey developer, H. Wesley Perkins, PhD, at Hobart and William Smith Colleges, at perkins@hws.edu or at 315 -781-3437.

Please complete this permission form and return it to the school by \_\_\_\_\_. It is very important that you return this form whether or not you allow your child to participate.

\_\_\_ Yes, my child may participate in this survey.

\_\_\_ No, I do not want my child to participate in this survey.

*Parent's Signature*

*Child's Name*

\_\_\_\_\_

PLEASE RETURN THIS COPY TO THE SCHOOL BY \_\_\_\_\_

## **Appendix F: Correlation Matrix of Variables in Bullying Regression Models**

## Correlations of Variables in Middle School Bullying Analysis - All cases

**Correlations**

		Age	White vs other	Letter grade most often received	Gender	Felt Bullied this year yes or no	School Level I feel Safe	School Size	Classroom Environment Scale	SR Bullying Scale	Victimization Scale	Beliefs about Bullying Scale	perceptions of others bullying	Perceptions of others victimization	perceptions of Others beliefs	How safe you feel at school
Age	Pearson Correlation Sig. (2-tailed) N	1 .001 3430	-.058 .001 3151	-.245 .000 3381	.047 .006 3409	.018 .302 3406	-.191 .000 3430	-.001 .966 3430	-.229 .000 3389	.215 .000 3239	.051 .004 3281	.273 .000 3399	.105 .000 3306	.113 .000 3280	.190 .000 3322	-.195 .000 3421
White vs other	Pearson Correlation Sig. (2-tailed) N	-.058 .001 3151	1 .000 3163	.181 .000 3123	-.051 .004 3148	.046 .010 3142	.010 .590 3163	.136 .000 3163	.094 .000 3125	-.131 .000 2991	-.079 .000 3032	-.081 .000 3136	-.061 .001 3046	-.047 .010 3030	-.058 .001 3066	.068 .000 3154
Letter grade most often received	Pearson Correlation Sig. (2-tailed) N	-.245 .000 3381	.181 .000 3123	1 .000 3398	-.111 .000 3378	-.028 .106 3374	.090 .000 3398	.022 .190 3398	.320 .000 3358	-.311 .000 3214	-.220 .000 3251	-.273 .000 3368	-.117 .000 3279	-.110 .000 3255	-.150 .000 3295	.260 .000 3389
Gender	Pearson Correlation Sig. (2-tailed) N	.047 .006 3409	-.051 .004 3148	-.111 .000 3378	1 .000 3424	-.055 .001 3400	.017 .317 3424	.002 .922 3424	-.059 .001 3385	.033 .060 3236	.016 .360 3278	.077 .000 3395	-.077 .000 3305	-.076 .000 3278	-.015 .399 3321	-.002 .903 3415
Felt Bullied this year yes or no	Pearson Correlation Sig. (2-tailed) N	.018 .302 3406	.046 .010 3142	-.028 .106 3374	-.055 .001 3400	1 .000 3477	-.045 .008 3477	.001 .955 3440	-.246 .000 3440	.168 .000 3274	.432 .000 3330	.039 .023 3422	.206 .000 3341	.194 .000 3327	.126 .000 3340	-.285 .000 3472
School Level I feel Safe	Pearson Correlation Sig. (2-tailed) N	-.191 .000 3430	.010 .590 3163	.090 .000 3398	.017 .317 3424	-.045 .008 3477	1 .000 3501	-.036 .035 3501	.172 .000 3459	-.108 .000 3292	-.085 .000 3348	-.082 .000 3441	-.065 .000 3361	-.063 .000 3344	-.128 .000 3359	-.198 .000 3491
School Size	Pearson Correlation Sig. (2-tailed) N	-.001 .966 3430	.136 .000 3163	.022 .190 3398	.002 .922 3424	.001 .955 3477	-.036 .035 3501	1 .000 3501	.038 .024 3459	-.024 .177 3292	-.004 .834 3348	.035 .038 3441	-.053 .002 3361	-.041 .017 3344	-.023 .180 3359	-.007 .675 3491
Classroom Environment Scale	Pearson Correlation Sig. (2-tailed) N	-.229 .000 3389	.094 .000 3125	.320 .000 3358	-.059 .001 3385	-.246 .000 3440	.172 .000 3459	.038 .024 3459	1 .000 3260	-.353 .000 3292	-.413 .000 3312	-.399 .000 3402	-.254 .000 3329	-.217 .000 3316	-.367 .000 3327	.556 .000 3453
SR Bullying Scale	Pearson Correlation Sig. (2-tailed) N	.215 .000 3239	-.131 .000 2991	-.311 .000 3214	.033 .060 3236	.168 .000 3274	-.108 .000 3292	-.024 .177 3292	1 .000 3260	.478 .000 3292	.505 .000 3248	.434 .000 3271	.434 .000 3306	.444 .000 3441	.395 .000 3295	-.320 .000 3287
Victimization Scale	Pearson Correlation Sig. (2-tailed) N	.051 .004 3281	-.079 .000 3032	-.220 .000 3251	.016 .360 3278	.432 .000 3330	-.085 .000 3348	-.004 .834 3348	-.413 .000 3312	.478 .000 3248	1 .000 3248	.199 .000 3306	.444 .000 3327	.428 .000 3295	.286 .000 3244	-.481 .000 3344
Beliefs about Bullying Scale	Pearson Correlation Sig. (2-tailed) N	.273 .000 3399	-.081 .000 3136	-.273 .000 3368	.077 .000 3395	.039 .023 3422	-.082 .000 3441	.035 .038 3441	-.399 .000 3402	.505 .000 3271	-.199 .000 3306	1 .000 3441	.203 .000 3327	.186 .000 3295	.555 .000 3346	-.290 .000 3434
perceptions of others bullying	Pearson Correlation Sig. (2-tailed) N	.105 .000 3306	-.061 .001 3046	-.117 .000 3279	-.077 .000 3305	.206 .000 3341	-.065 .000 3361	-.053 .002 3361	-.254 .000 3329	.434 .000 3244	.444 .000 3259	.203 .000 3327	1 .000 3361	.777 .000 3277	.413 .000 3286	-.306 .000 3356
Perceptions of others victimization	Pearson Correlation Sig. (2-tailed) N	.113 .000 3280	-.047 .010 3030	-.110 .000 3255	-.076 .000 3278	.194 .000 3327	-.063 .000 3344	-.041 .017 3344	-.217 .000 3316	.395 .000 3196	.428 .000 3242	.186 .000 3295	.777 .000 3277	1 .000 3344	.352 .000 3256	-.265 .000 3340
perceptions of Others beliefs	Pearson Correlation Sig. (2-tailed) N	.190 .000 3322	-.058 .001 3066	-.150 .000 3295	-.015 .399 3321	.126 .000 3340	-.128 .000 3359	-.023 .180 3359	-.367 .000 3327	.302 .000 3214	.286 .000 3244	.555 .000 3346	.413 .000 3286	.352 .000 3256	1 .000 3359	-.317 .000 3354
How safe you feel at school	Pearson Correlation Sig. (2-tailed) N	-.195 .000 3421	.068 .000 3154	.260 .000 3389	-.002 .903 3415	-.285 .000 3472	.198 .000 3491	-.007 .675 3491	.556 .000 3453	-.320 .000 3287	-.481 .000 3344	-.290 .000 3434	-.306 .000 3356	-.265 .000 3340	-.317 .000 3354	1 .000 3491



## Correlations of Variables in Middle School Bullying Analysis – Cohort 1 Cases Only

**Correlations**

		Age	White vs other	Letter grade most often received	Gender	Felt Bullied this year yes or no	School Level I feel Safe	School Size	Classroom Environment Scale	SR Bullying Scale	Victimization Scale	Beliefs about Bullying Scale	perceptions of others bullying	Perceptions of others victimization	perceptions of Others beliefs	How safe you feel at school
Age	Pearson Correlation	1	-.110	-.268	.037	.057	-.116	.012	-.234	.235	.117	-.281	.110	.121	.201	-.237
	Sig. (2-tailed)	.	.000	.000	.088	.008	.000	.585	.000	.000	.000	.000	.000	.000	.000	.000
	N	2170	2151	2140	2153	2154	2170	2170	2144	2055	2086	2149	2088	2083	2104	2163
White vs other	Pearson Correlation	-.110	1	.212	-.064	.042	.047	.130	.109	-.131	-.084	-.126	-.077	-.073	-.111	.107
	Sig. (2-tailed)	.000	.	.000	.003	.050	.028	.000	.000	.000	.000	.000	.000	.001	.000	.000
	N	2151	2161	2136	2148	2146	2161	2161	2135	2050	2081	2142	2083	2077	2099	2154
Letter grade most often received	Pearson Correlation	-.268	.212	1	-.136	-.036	.055	.044	.363	-.357	-.267	-.331	-.167	-.157	-.215	.315
	Sig. (2-tailed)	.000	.000	.	.000	.099	.011	.040	.000	.000	.000	.000	.000	.000	.000	.000
	N	2140	2136	2153	2138	2137	2153	2153	2128	2043	2070	2133	2074	2070	2091	2146
Gender	Pearson Correlation	.037	-.064	-.136	1	-.041	-.012	-.012	-.063	.032	.025	.077	-.065	-.068	-.015	-.021
	Sig. (2-tailed)	.088	.003	.000	.	.060	.590	.588	.004	.152	.248	.000	.003	.002	.506	.330
	N	2153	2148	2138	2165	2149	2165	2165	2141	2053	2083	2146	2087	2081	2103	2158
Felt Bullied this year yes or no	Pearson Correlation	.057	.042	-.036	-.041	1	-.024	.025	-.263	.182	.423	.075	.195	.186	.131	-.277
	Sig. (2-tailed)	.008	.050	.099	.060	.	.264	.237	.000	.000	.000	.001	.000	.000	.000	.000
	N	2154	2146	2137	2149	2208	2208	2208	2184	2083	2124	2169	2117	2118	2119	2204
School Level I feel Safe	Pearson Correlation	-.116	.047	.055	-.012	-.024	1	-.115	.143	-.134	-.082	-.117	.039	.028	-.073	.167
	Sig. (2-tailed)	.000	.028	.011	.590	.264	.	.000	.000	.000	.000	.000	.070	.189	.001	.000
	N	2170	2161	2153	2165	2208	2224	2224	2197	2095	2136	2182	2130	2130	2132	2216
School Size	Pearson Correlation	.012	-.130	.044	-.012	.025	-.115	1	.011	.019	.016	.052	-.021	-.019	-.019	-.019
	Sig. (2-tailed)	.585	.000	.040	.588	.237	.000	.	.591	.377	.461	.016	.336	.344	.372	.366
	N	2170	2161	2153	2165	2208	2224	2224	2197	2095	2136	2182	2130	2130	2132	2216
Classroom Environment Scale	Pearson Correlation	-.234	.109	.363	-.063	-.263	.143	.011	1	-.382	-.430	-.465	-.261	-.240	-.413	.573
	Sig. (2-tailed)	.000	.000	.000	.004	.000	.591	.000	.	.000	.000	.000	.000	.000	.000	.000
	N	2144	2135	2128	2141	2184	2197	2197	2197	2075	2114	2157	2110	2110	2111	2192
SR Bullying Scale	Pearson Correlation	.235	-.131	-.357	.032	.182	-.134	.019	-.382	1	.522	.561	.443	.412	.365	-.391
	Sig. (2-tailed)	.000	.000	.000	.152	.000	.000	.377	.000	.	.000	.000	.000	.000	.000	.000
	N	2055	2050	2043	2053	2083	2095	2095	2075	2095	2073	2079	2069	2041	2043	2091
Victimization Scale	Pearson Correlation	.117	-.084	-.267	.025	.423	-.082	.016	-.430	.522	1	.294	.451	.439	.361	-.491
	Sig. (2-tailed)	.000	.000	.000	.248	.000	.000	.461	.000	.000	.	.000	.000	.000	.000	.000
	N	2086	2081	2070	2083	2124	2136	2136	2114	2073	2136	2106	2081	2077	2066	2133
Beliefs about Bullying Scale	Pearson Correlation	.281	-.126	-.331	.077	.075	-.117	.052	-.465	.561	.294	1	.255	.233	.615	-.393
	Sig. (2-tailed)	.000	.000	.000	.000	.001	.000	.016	.000	.000	.000	.	.000	.000	.000	.000
	N	2149	2142	2133	2146	2169	2182	2182	2157	2079	2106	2182	2107	2095	2124	2176
perceptions of others bullying	Pearson Correlation	.110	-.077	-.167	-.065	.195	.039	-.021	-.261	.443	.451	.255	1	.776	.435	-.302
	Sig. (2-tailed)	.000	.000	.000	.003	.000	.070	.336	.000	.000	.000	.000	.	.000	.000	.000
	N	2088	2083	2074	2087	2117	2130	2130	2110	2069	2081	2107	2130	2089	2085	2126
Perceptions of others victimization	Pearson Correlation	.121	-.073	-.157	-.068	.186	.028	-.021	-.240	.412	.439	.233	.776	1	.373	-.268
	Sig. (2-tailed)	.000	.001	.000	.002	.000	.189	.344	.000	.000	.000	.000	.000	.	.000	.000
	N	2083	2077	2070	2081	2118	2130	2130	2110	2041	2077	2095	2089	2130	2074	2127
perceptions of Others beliefs	Pearson Correlation	.201	-.111	-.215	-.015	.131	-.073	.019	-.413	.365	.361	.615	.435	.373	1	-.366
	Sig. (2-tailed)	.000	.000	.000	.506	.000	.001	.372	.000	.000	.000	.000	.000	.000	.	.000
	N	2104	2099	2091	2103	2119	2132	2132	2111	2043	2066	2124	2085	2074	2132	2128
How safe you feel at school	Pearson Correlation	-.237	.107	.315	-.021	-.277	.167	-.019	.573	-.391	-.491	-.393	-.302	-.268	-.366	1
	Sig. (2-tailed)	.000	.000	.000	.330	.000	.000	.366	.000	.000	.000	.000	.000	.000	.	.
	N	2163	2154	2146	2158	2204	2216	2216	2192	2091	2133	2176	2126	2127	2128	2216

## Correlations of Variables in Middle School Bullying Analysis – Cohort 2 Cases Only

**Correlations**

		Age	White vs other	Letter grade most often received	Gender	Felt Bullied this year yes or no	School Level I feel Safe	School Size	Classroom Environment Scale	SR Bullying Scale	Victimization Scale	Beliefs about Bullying Scale	perceptions of others bullying	Perceptions of others victimization	perceptions of Others beliefs	How safe you feel at school
Age	Pearson Correlation	1	.065	-.173	.056	-.043	-.349	-.327	-.232	.181	-.078	.236	.142	-.134	-.197	-.110
	Sig. (2-tailed)	.	.039	.000	.047	.125	.000	.000	.000	.000	.007	.000	.000	.000	.000	.000
	N	1260	1000	1241	1256	1252	1260	1260	1245	1184	1195	1250	1218	1197	1218	1258
White vs other	Pearson Correlation	.065	1	.108	-.024	.055	-.120	-.177	.060	-.130	-.065	.032	-.023	.015	.064	-.020
	Sig. (2-tailed)	.039	.	.001	.445	.081	.000	.000	.059	.000	.044	.315	.471	.647	.048	.533
	N	1000	1002	987	1000	996	1002	1002	990	941	951	994	963	953	967	1000
Letter grade most often received	Pearson Correlation	-.173	.108	1	-.056	-.020	.151	.051	.226	-.209	-.131	-.121	-.027	-.024	-.022	.145
	Sig. (2-tailed)	.000	.001	.	.050	.484	.000	.071	.000	.000	.000	.000	.346	.404	.443	.000
	N	1241	987	1245	1240	1237	1245	1245	1230	1171	1181	1235	1205	1185	1204	1243
Gender	Pearson Correlation	.056	-.024	-.056	1	-.075	.051	-.027	-.055	.038	.004	.072	-.090	-.082	-.011	.031
	Sig. (2-tailed)	.047	.445	.050	.	.008	.072	.343	.053	.196	.880	.011	.002	.004	.705	.266
	N	1256	1000	1240	1259	1251	1259	1259	1244	1183	1195	1249	1218	1197	1218	1257
Felt Bullied this year yes or no	Pearson Correlation	-.043	.055	-.020	-.075	1	-.070	.052	-.212	.139	.445	-.027	.211	.200	.109	-.300
	Sig. (2-tailed)	.125	.081	.484	.008	.	.013	.063	.000	.000	.000	.334	.000	.000	.000	.000
	N	1252	996	1237	1251	1269	1269	1269	1256	1191	1206	1253	1224	1209	1221	1268
School Level I feel Safe	Pearson Correlation	-.349	-.120	.151	.051	-.070	1	.035	.223	-.076	-.089	-.040	-.190	-.177	-.199	.247
	Sig. (2-tailed)	.000	.000	.000	.072	.013	.	.211	.000	.009	.002	.153	.000	.000	.000	.000
	N	1260	1002	1245	1259	1269	1277	1277	1262	1197	1212	1259	1231	1214	1227	1275
School Size	Pearson Correlation	-.327	-.177	.051	-.027	.052	.035	1	.096	-.120	.033	-.095	.006	.027	-.049	.009
	Sig. (2-tailed)	.000	.000	.071	.343	.063	.211	.	.001	.000	.258	.001	.822	.355	.088	.757
	N	1260	1002	1245	1259	1269	1277	1277	1262	1197	1212	1259	1231	1214	1227	1275
Classroom Environment Scale	Pearson Correlation	-.232	.060	.226	-.055	-.212	.223	.096	1	-.288	-.379	-.243	-.238	-.168	-.273	.524
	Sig. (2-tailed)	.000	.059	.000	.053	.000	.000	.001	.	.000	.000	.000	.000	.000	.000	.000
	N	1245	990	1230	1244	1256	1262	1262	1262	1185	1198	1245	1219	1206	1216	1261
SR Bullying Scale	Pearson Correlation	.181	-.130	-.209	.038	.139	-.076	-.120	-.288	1	.391	.381	.419	.362	.174	-.175
	Sig. (2-tailed)	.000	.000	.000	.196	.000	.009	.000	.000	.	.000	.000	.000	.000	.000	.000
	N	1184	941	1171	1183	1191	1197	1197	1185	1197	1175	1192	1175	1155	1171	1196
Victimization Scale	Pearson Correlation	-.078	-.065	-.131	.004	.445	-.089	.033	-.379	.391	1	.001	.424	.401	.144	-.464
	Sig. (2-tailed)	.007	.044	.000	.880	.000	.002	.258	.000	.000	.	.969	.000	.000	.000	.000
	N	1195	951	1181	1195	1206	1212	1212	1198	1175	1212	1200	1178	1165	1178	1211
Beliefs about Bullying Scale	Pearson Correlation	.236	.032	-.121	.072	-.027	-.040	-.095	-.243	.381	.001	1	.113	.097	.442	-.062
	Sig. (2-tailed)	.000	.315	.000	.011	.334	.153	.001	.000	.000	.969	.	.000	.001	.000	.027
	N	1250	994	1235	1249	1253	1259	1259	1245	1192	1200	1259	1220	1200	1222	1258
perceptions of others bullying	Pearson Correlation	.142	-.023	-.027	-.090	.211	-.190	.006	-.238	.419	.424	.113	1	.773	.366	-.316
	Sig. (2-tailed)	.000	.471	.346	.002	.000	.000	.822	.000	.000	.000	.000	.	.000	.000	.000
	N	1218	963	1205	1218	1224	1231	1231	1219	1175	1178	1220	1231	1188	1201	1230
Perceptions of others victimization	Pearson Correlation	.134	.015	-.024	-.082	.200	-.177	.027	-.168	.362	.401	.097	.773	1	.304	-.261
	Sig. (2-tailed)	.000	.647	.404	.004	.000	.000	.355	.000	.000	.000	.001	.000	.	.000	.000
	N	1197	953	1185	1197	1209	1214	1214	1206	1155	1165	1200	1188	1214	1182	1213
perceptions of Others beliefs	Pearson Correlation	.197	.064	-.022	-.011	.109	-.199	-.049	-.273	.174	.144	.442	.366	.304	1	-.227
	Sig. (2-tailed)	.000	.048	.443	.705	.000	.000	.088	.000	.000	.000	.000	.000	.000	.	.000
	N	1218	967	1204	1218	1221	1227	1227	1216	1171	1178	1222	1201	1182	1227	1226
How safe you feel at school	Pearson Correlation	-.110	-.020	.145	.031	-.300	.247	.009	.524	-.175	-.464	-.062	-.316	-.261	-.227	1
	Sig. (2-tailed)	.000	.533	.000	.266	.000	.000	.757	.000	.000	.000	.027	.000	.000	.000	.
	N	1258	1000	1243	1257	1268	1275	1275	1261	1196	1211	1258	1230	1213	1226	1275

## Appendix G: High School Survey

### Survey of Student Norms

This is a survey of what students think about their school, the use of alcohol, tobacco, and other substances, and about other behaviors related to health and safety. We want you to tell us about yourself and your perceptions of other students. You will not be asked to submit your name; this is an anonymous survey. Questions that ask about other students are referring to students at your school. Please read each question carefully. There are no “right” or “wrong” answers – just give your best estimate. This survey is voluntary. If you do not wish to respond to a question you may leave it blank and continue on.

23. What grade are you in?
24. How old are you?
25. Gender:
  - a. Male
  - b. Female
26. Which of the following groups or activities have you participated in this school year?
  - a. School club or student government
  - b. Varsity sport, junior varsity sport, or junior high or modified sport
  - c. Performing theatre, dance or musical group
  - d. Volunteer service work
  - e. Religious group
  - f. Part-time job
27. What is your most typical transportation to and from school?
  - a. School bus
  - b. Walk or ride bike
  - c. I drive
  - d. Brother, sister, or friend drives
  - e. Parent or other adult drives
  - f. City bus or train
28. At this school: (SA, A, D, SD)
  - a. I feel that other students care about me.
  - b. I feel that teachers care about me.
  - c. I am encouraged to help and respect other students.
  - d. I don't fit in.
  - e. Other students look to me to show them how to act.
  - f. It is easy to make friends here.
  - g. I can't do much to change bad things that happen here.
  - h. I am happy here most of the time.
  - i. Teachers don't really try to stop kids who are bullies.
29. Which statement below about student use of tobacco (including cigarettes, cigars, and chewing tobacco) do you feel best represents your own attitude?

- a. Tobacco use is never a good thing to do.
  - b. Occasional tobacco use is ok, but not daily use.
  - c. Daily tobacco use is okay if that's what the individual wants to do.
30. Which statement below about student use of tobacco (including cigarettes, cigars, and chewing tobacco) do you expect to be the most common attitude among students in general in your grade?
- a. Tobacco use is never a good thing to do.
  - b. Occasional tobacco use is ok, but not daily use.
  - c. Daily tobacco use is okay if that's what the individual wants to do.
31. Which statement below about drinking alcoholic beverages do you feel best represents your own attitude?
- a. Drinking is never a good thing to do for anyone at any age.
  - b. Drinking in moderation is all right for adults, but not for students my age except for just a few sips in a family or religious gathering.
  - c. Occasional drinking at my age beyond just a few sips in a family or religious gathering is okay as long as it doesn't interfere with school work or other responsibilities
  - d. Frequent drinking at my age is okay if that's what the individual wants to do.
32. Which statement below about drinking alcoholic beverages do you expect to be the most common attitude among students in general in your grade?
- a. Drinking is never a good thing to do for anyone at any age.
  - b. Drinking in moderation is all right for adults, but not for students my age except for just a few sips in a family or religious gathering.
  - c. Occasional drinking at my age beyond just a few sips in a family or religious gathering is okay as long as it doesn't interfere with school work or other responsibilities
33. How often do you think students in each of the following categories typically use tobacco (including cigarettes, cigars and chewing tobacco)? Just give your best estimate of what is most typical for each category (Never, 1-2 per year, Once a month, Twice a month, Once a week, Twice a week, Daily).
- a. Yourself
  - b. Your friends
  - c. Students in your grade
  - d. Males in your grade
  - e. Females in your grade
  - f. High school juniors and seniors
  - g. School athletes
34. Not counting just a few sips in a family or religious gathering, how often do you think students in each of the following categories typically consume alcohol? Include beer, wine, wine coolers, liquor and mixed drinks in your answer. Just give your best estimate of what is most typical for each category (Never, 1-2 per year, Once a month, Twice a month, Once a week, Twice a week, Daily).
- a. Yourself
  - b. Your friends
  - c. Students in your grade

- d. Males in your grade
  - e. Females in your grade
  - f. High school juniors and seniors
  - g. School athletes
35. How many alcoholic drinks, if any, do you think each of the following students on average typically consume at parties or social occasions? Just give your best estimate of what is most typical for each category (0, 1, 2, 3, 4, 5, 6, 7+).
- a. Yourself
  - b. Your friends
  - c. Students in your grade
  - d. Males in your grade
  - e. Females in your grade
  - f. High school juniors and seniors
  - g. School athletes
36. How often do you think students in each of the following categories typically use marijuana? Just give your best estimate of what is most typical for each category (Never, 1-2 per year, Once a month, Twice a month, Once a week, Twice a week, Daily).
- a. Yourself
  - b. Your friends
  - c. Students in your grade
  - d. Males in your grade
  - e. Females in your grade
  - f. High school juniors and seniors
  - g. School athletes
37. How often do you think students in each of the following categories typically use illicit drugs other than marijuana? Just give your best estimate of what is most typical for each category (Never, 1-2 per year, Once a month, Twice a month, Once a week, Twice a week, Daily).
- a. Yourself
  - b. Your friends
  - c. Students in your grade
  - d. Males in your grade
  - e. Females in your grade
  - f. High school juniors and seniors
  - g. School athletes
38. Overall, what percentage of students at your grade level do you think use NO tobacco products at all? Just give your best estimate (from 0 to 100%).
- a. \_\_\_\_\_
39. Overall, what percentage of students at your grade level do you think consume NO alcoholic beverages at all? Just give your best estimate (fro 0 to 100%).
- a. \_\_\_\_\_
40. How often, if ever, have you consumed alcohol at a party or social occasion with other students in the last 12 months?
- a. Never
  - b. A few times, but not monthly

- c. About once a month
  - d. About once a week or more often
41. During the past 30 days, on how many days did you:
- a. Use tobacco (including cigarettes, cigars, and chewing tobacco)
  - b. Use alcohol (not counting just a few sips in a family or religious gathering)
  - c. Use marijuana
42. If you never smoke tobacco, or if you have smoked but sometimes choose not to, how do you resist pressure from those who are smoking?
- a. I don't go to places where people are smoking.
  - b. I leave places where people are smoking.
  - c. I avoid smokers.
  - d. I hang out with people who don't smoke.
  - e. I tell people that I don't want to smoke if they ask me.
43. If you never drink alcohol, or if you have consumed alcohol but sometimes choose not to, how do you resist pressure from those who are drinking?
- a. I don't go to parties where people are drinking.
  - b. I leave parties where people are drinking.
  - c. I hang out with people who don't drink.
  - d. I tell people that I don't want to drink if they ask me.
  - e. I hold an alcoholic drink, but don't drink from it.
  - f. I drink non-alcoholic drinks like water or pop.
44. How recently, if ever, have you been drunk in the last 12 months?
- a. Never
  - b. Within the last year, but not within the last 30 days.
  - c. Within the last 30 days, but not within the last 7 days.
  - d. Within the last 7 days.
45. Overall, what percentage of students at your grade level do you think have been drunk on at least one occasion in the last 7 days? Again, just give your best estimate (from 0 to 100%).
- a. \_\_\_\_\_
46. If you did not drink at all beyond just a few sips during the last 12 months, check the box here and skip the next question.
47. During the last 12 months which, if any, of the following has occurred as a consequence of your drinking? Select one answer for each item. (Not during the last 12 months, Once during the last 12 months, More than once during the last 12 months).
- a. Physical injury to yourself
  - b. Physical injury to others
  - c. Fighting
  - d. Damage to property
  - e. Cutting class
  - f. Inefficiency in homework, classroom, or lab work
  - g. Late papers, missed exams, failure to study for exams
  - h. Damaged friendships or relationships
  - i. Impaired driving

- j. After drinking could not remember events or actions that occurred while drinking
  - k. Missed or performed poorly in an athletic event
  - l. Hospitalization
  - m. Punishment by parent or guardian
  - n. Trouble with police
  - o. Sickness (hangover, nausea, illness)
48. How often do you think students in each of the following categories are approached by other students or anyone else and offered tobacco, alcohol, or other drugs during school hours? Just give your best estimate of what is most typical for each category (Never, 1-2 per year, Once a month, Twice a month, Once a week, Twice a week, Daily).
- a. Yourself
  - b. Students in your grade
49. Who do you think students should tell if they saw a weapon (knife or gun) at school? And what would most other students say? Check all that apply.
- a. I think students should...
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
  - b. Most other students would say...
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
50. Who do you think students should tell if they saw drugs (other than tobacco or alcohol) at school? And what would most other students say? Check all that apply.
- a. I think students should...
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone

- b. Most other students would say...
    - i. Tell a principal
    - ii. Tell a teacher or counselor
    - iii. Tell a hall monitor
    - iv. Tell a friend
    - v. Tell a police officer or security person
    - vi. Tell a parent or another adult relative
    - vii. Tell a brother, sister, or cousin
    - viii. Not tell anyone
51. During this school year have you ever felt bullied at school?
- a. Never
  - b. Rarely
  - c. Sometimes
  - d. Often
52. How often have you skipped school this year because you were afraid of other students hurting you or making fun of you?
- a. Never
  - b. Once
  - c. 2-3 times
  - d. 4 or more times
53. On a scale of one to ten, how safe do you feel at school?
- a. Very threatened (1) to Very safe (10)
54. How often do you think students in each of the following categories use seat belts when driving or riding in a motor vehicle? Again, just give your best estimate for each category (Almost never – 1-10% of the time, Seldom – 25% of the time, Half – 50% of the time, Usually – 75% of the time, Almost Always – 90-100% of the time).
- a. Yourself
  - b. Your friends
  - c. Students in your grade
  - d. High school juniors and seniors
55. How often during the last year have you been a passenger in a motor vehicle with a driver who drank alcohol just before or while driving?
- a. Never
  - b. Once
  - c. Twice
  - d. 3 or more times
56. What percentage of students do you think have ridden during the last year as a passenger in a motor vehicle with a driver who drank alcohol just before or while driving? Just give your best estimate.
- a. \_\_\_\_\_
57. What limits, if any, do your parents apply to you about drinking alcohol in your home?
- a. No drinking is allowed (other than a few sips in a family or religious gathering).



- b. Some drinking is allowed with a parent when only family members are present.
  - c. Some drinking with friends is allowed if a parent is present.
  - d. Drinking is allowed without a parent present as long as I do not get drunk or drive afterwards.
  - e. No limits.
58. What limits, if any, would you say are most typical of other students' parents concerning student drinking in the home?
- a. No drinking is allowed (other than a few sips in a family or religious gathering).
  - b. Some drinking is allowed with a parent when only family members are present.
  - c. Some drinking with friends is allowed if a parent is present.
  - d. Drinking is allowed without a parent present as long as I do not get drunk or drive afterwards.
  - e. No limits.
59. Are you currently licensed to drive an automobile?
- a. No
  - b. Yes, but with a restricted permit (for example, requiring another licensed driver in the car or only allowing driving at particular times of the day)
  - c. Yes, without restrictions.
60. What is your race or ethnic origin?
- a. American Indian/Alaskan Native
  - b. Asian
  - c. Black/African American
  - d. Hispanic/Latino
  - e. White/Caucasian
  - f. Other
61. What is your weight and height?
- a. Weight in pounds
  - b. Height (enter feet and then inches)
62. Which best describes what you think of your current weight?
- a. I am...
    - i. Very underweight
    - ii. Somewhat underweight
    - iii. About right
    - iv. Somewhat overweight
    - v. Very overweight
63. What would you guess is the average male and female weight for males and females in your grade?
- a. Average male weight in your grade (in pounds)
  - b. Average female weight in your grade (in pounds)
64. What is your approximate grade point average for last term's courses? Use a 4 point scale.

Thank you for taking the survey!

## Appendix H: High School Exposure Questions

5. What grade are you in?
  - a. 6
  - b. 7
  - c. 8
  - d. 9
  - e. 10
  - f. 11
  - g. 12
6. Are you a...
  - a. Boy
  - b. Girl
7. During this school year, how often have you seen or heard information about what most students or the majority do or think about smoking, drinking, or using substances based on survey results from students in your school?
  - a. Never
  - b. Once
  - c. Twice
  - d. 3 – 4 times
  - e. 5 – 9 times
  - f. 10 – 19 times
  - g. 20 or more times
8. Where did you see or hear this survey information about what most do or think about bullying and other unfriendly behaviors? (Never, Once, More than Once).
  - a. On posters at school
  - b. In school newsletters
  - c. On a computer screen saver
  - d. On a school web page
  - e. On other printed materials (t-shirts, flyers, gift cards, giveaway items)
  - f. On a school TV or computer video
  - g. In school announcements over school PA (speaker system)
  - h. In school assemblies
  - i. From teachers in class
  - j. From talking with other students
  - k. From talking with parents

## **Appendix I: High School Parental Consent Form**

### PARENTAL CONSENT FORM

Dear Parents/Guardians:

This year your child's school will participate in a statewide social norms research survey being conducted with high school students in New Jersey. The primary purpose of this survey, based on the social norms approach, is to learn about youth alcohol use, knowledge, attitudes and behaviors. The survey is being sponsored by the Rowan University Center for Addiction Studies in partnership with the New Jersey Department of Education. The information obtained from this survey will be used to develop and evaluate programs for decreasing alcohol, tobacco and other drug use among New Jersey youth.

During the school year, all students in your child's class will be asked to fill out an on-line questionnaire about their attitudes toward and use of alcohol, tobacco and other drugs.

Students may skip any question that they do not wish to answer and may stop participating in the survey at any point. While participation by all students helps obtain accurate information, please note that your child's participation in the survey is *voluntary*. No action will be taken against the school, you, or your child, if your child does not take part. Students not participating in the survey will be provided with an alternative activity by their school.

The survey has been designed to protect your child's privacy. Students will not put their names on the survey and no one will know how a particular student answers the questions. No one from the school will be allowed to look at your child's or any other student's completed survey.

If you choose, you are entitled to review a copy of the questionnaire prior to the survey date by contacting your child's school principal.

If you have any questions concerning this project, please contact the project coordinator at your school. If you have any specific questions about the survey, you may contact project coordinator Allie Pearce at Rowan University [(856) 863 -2175 or [pearce@rowan.edu](mailto:pearce@rowan.edu)] or Pam Negro, Director of the Center for Addiction Studies at [negro@rowan.edu](mailto:negro@rowan.edu).

Please complete this permission form and return it to the school by \_\_\_\_\_. It is very important that you return this form whether or not you allow your child to participate.

\_\_\_ Yes, my child may participate in this survey.

\_\_\_ No, I do not want my child to participate in this survey.

*Parent's Signature*

*Child's Name*

\_\_\_\_\_

**PLEASE RETURN THIS COPY TO THE SCHOOL BY \_\_\_\_\_**

## **Appendix J: Correlation Matrix of Variables in ATOD Regression Models**

## Correlations of Variables in High School ATOD Analysis - All cases

### Correlations

		Age	White vs other	Gender	Self: How often consumed alcohol at party in last 12 months	Self: Days using tobacco in past 30 days	Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Perception: % in grade NO tobacco use	Perception of Tobacco Use Scale	Perception of Alcohol Use Scale	Perception of Marijuana Use Scale	Perception of Illicit Use Scale	Smoking Resistance Scale	Drinking Resistance Scale
Age	Pearson Correlation	1	-.014	.022	.204	.150	.103	-.176	.236	.214	.228	.048	-.116	-.131
	Sig. (2-tailed)	.	.459	.219	.000	.000	.000	.000	.000	.000	.000	.007	.000	.000
	N	3234	2752	3225	3183	3184	3180	3142	3144	3137	3140	3133	3199	3199
White vs other	Pearson Correlation	-.014	1	.004	.032	.030	-.012	.082	-.074	-.028	-.107	-.133	.046	.043
	Sig. (2-tailed)	.459	.	.843	.093	.111	.522	.000	.000	.151	.000	.000	.015	.024
	N	2752	2759	2750	2747	2747	2744	2714	2714	2709	2714	2704	2759	2759
Gender	Pearson Correlation	.022	.004	1	-.001	.078	.008	.093	-.032	-.051	-.035	-.050	-.067	-.093
	Sig. (2-tailed)	.219	.843	.	.935	.000	.634	.000	.073	.005	.051	.005	.000	.000
	N	3225	2750	3235	3184	3185	3181	3143	3145	3138	3141	3132	3200	3200
Self: How often consumed alcohol at party in last 12 months	Pearson Correlation	.204	.032	-.001	1	.334	.554	-.237	.330	.389	.380	.160	-.303	-.395
	Sig. (2-tailed)	.000	.093	.935	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	3183	2747	3184	3195	3185	3181	3144	3144	3138	3143	3134	3195	3195
Self: Days using tobacco in past 30 days	Pearson Correlation	.150	.030	.078	.334	1	.398	-.188	.272	.159	.280	.134	-.197	-.168
	Sig. (2-tailed)	.000	.111	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
	N	3184	2747	3185	3185	3196	3190	3146	3146	3138	3142	3133	3196	3196
Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Pearson Correlation	.103	-.012	.008	.554	.398	1	-.199	.215	.253	.277	.221	-.197	-.217
	Sig. (2-tailed)	.000	.522	.634	.000	.	.	.000	.000	.000	.000	.000	.000	.000
	N	3180	2744	3181	3181	3190	3192	3143	3142	3134	3139	3129	3192	3192
Perception: % in grade NO tobacco use	Pearson Correlation	-.176	.082	.093	-.237	-.188	-.199	1	-.471	-.367	-.432	-.335	.195	.181
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
	N	3142	2714	3143	3144	3146	3143	3154	3108	3101	3104	3096	3154	3154
Perception of Tobacco Use Scale	Pearson Correlation	.236	-.074	-.032	.330	.272	.215	-.471	1	.634	.646	.448	-.213	-.196
	Sig. (2-tailed)	.000	.000	.073	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
	N	3144	2714	3145	3144	3146	3142	3108	3156	3122	3123	3120	3156	3156
Perception of Alcohol Use Scale	Pearson Correlation	.214	-.028	-.051	.389	.159	.253	-.367	.634	1	.615	.432	-.172	-.231
	Sig. (2-tailed)	.000	.151	.005	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	3137	2709	3138	3138	3138	3134	3101	3122	3149	3113	3109	3149	3149
Perception of Marijuana Use Scale	Pearson Correlation	.228	-.107	-.035	.380	.280	.277	-.432	.646	.615	1	.560	-.227	-.231
	Sig. (2-tailed)	.000	.000	.051	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	3140	2714	3141	3143	3142	3139	3104	3123	3113	3152	3124	3152	3152
Perception of Illicit Use Scale	Pearson Correlation	.048	-.133	-.050	.160	.134	.221	-.335	.448	.432	.560	1	-.076	-.089
	Sig. (2-tailed)	.007	.000	.005	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
	N	3133	2704	3132	3134	3133	3129	3096	3120	3109	3124	3143	3143	3143
Smoking Resistance Scale	Pearson Correlation	-.116	.046	-.067	-.303	-.197	-.197	.195	-.213	-.172	-.227	-.076	1	.697
	Sig. (2-tailed)	.000	.015	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
	N	3199	2759	3200	3195	3196	3192	3154	3156	3149	3152	3143	3211	3211
Drinking Resistance Scale	Pearson Correlation	-.131	.043	-.093	-.395	-.168	-.217	.181	-.196	-.231	-.231	-.089	.697	1
	Sig. (2-tailed)	.000	.024	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.
	N	3199	2759	3200	3195	3196	3192	3154	3156	3149	3152	3143	3211	3211

## Correlations of Variables in High School ATOD Analysis – Cohort 1 Cases Only

### Correlations

		Age	White vs other	Gender	Self: How often consumed alcohol at party in last 12 months	Self: Days using tobacco in past 30 days	Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Perception: % in grade NO tobacco use	Perception of Tobacco Use Scale	Perception of Alcohol Use Scale	Perception of Marijuana Use Scale	Perception of Illicit Use Scale	Smoking Resistance Scale	Drinking Resistance Scale
Age	Pearson Correlation	1	-.095	.008	.202	.126	.071	-.102	.125	.176	.220	.054	-.100	-.150
	Sig. (2-tailed)	.	.003	.813	.000	.000	.027	.002	.000	.000	.000	.090	.002	.000
	N	990	969	987	979	977	977	963	976	974	977	970	986	986
White vs other	Pearson Correlation	-.095	1	.016	.008	.091	-.018	.159	-.079	-.050	-.154	-.154	.121	.134
	Sig. (2-tailed)	.003	.	.612	.810	.005	.569	.000	.015	.123	.000	.000	.000	.000
	N	969	971	968	967	964	964	951	962	961	965	957	971	971
Gender	Pearson Correlation	.008	.016	1	.020	.046	.020	.063	-.045	-.043	-.020	-.009	-.064	-.096
	Sig. (2-tailed)	.813	.612	.	.530	.147	.533	.049	.156	.542	.772	.044	.003	.003
	N	987	968	989	978	976	976	962	975	973	976	968	985	985
Self: How often consumed alcohol at party in last 12 months	Pearson Correlation	.202	.008	.020	1	.355	.520	-.198	.307	.351	.388	.142	-.282	-.359
	Sig. (2-tailed)	.000	.810	.530	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	979	967	978	981	976	976	962	974	973	977	969	981	981
Self: Days using tobacco in past 30 days	Pearson Correlation	.126	.091	.046	.355	1	.354	-.206	.293	.148	.314	.127	-.209	-.153
	Sig. (2-tailed)	.000	.005	.147	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
	N	977	964	976	976	979	979	961	973	970	974	966	979	979
Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Pearson Correlation	.071	-.018	.020	.520	.354	1	-.183	.144	.165	.255	.200	-.189	-.171
	Sig. (2-tailed)	.027	.569	.533	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
	N	977	964	976	976	979	979	961	973	970	974	966	979	979
Perception: % in grade NO tobacco use	Pearson Correlation	-.102	.159	.063	-.198	-.206	-.183	1	-.456	-.311	-.486	-.337	.232	.208
	Sig. (2-tailed)	.002	.000	.049	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
	N	963	951	962	962	961	961	965	959	957	960	953	965	965
Perception of Tobacco Use Scale	Pearson Correlation	.125	-.079	-.045	.307	.293	.144	-.456	1	.644	.647	.427	-.195	-.160
	Sig. (2-tailed)	.000	.015	.156	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
	N	976	962	975	974	973	973	959	978	971	974	966	978	978
Perception of Alcohol Use Scale	Pearson Correlation	.176	-.050	-.043	.351	.148	.165	-.311	.644	1	.620	.434	-.125	-.192
	Sig. (2-tailed)	.000	.123	.182	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	974	961	973	973	970	970	957	971	976	973	966	976	976
Perception of Marijuana Use Scale	Pearson Correlation	.220	-.154	-.020	.388	.314	.255	-.486	.647	.620	1	.555	-.270	-.272
	Sig. (2-tailed)	.000	.000	.542	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	977	965	976	977	974	974	960	974	973	979	970	979	979
Perception of Illicit Use Scale	Pearson Correlation	.054	-.154	-.009	.142	.127	.200	-.337	.427	.434	.555	1	-.074	-.096
	Sig. (2-tailed)	.090	.000	.772	.000	.000	.000	.000	.000	.000	.000	.	.021	.003
	N	970	957	968	969	966	966	953	966	966	970	971	971	971
Smoking Resistance Scale	Pearson Correlation	-.100	.121	-.064	-.282	-.209	-.189	.232	-.195	-.125	-.270	-.074	1	.714
	Sig. (2-tailed)	.002	.000	.044	.000	.000	.000	.000	.000	.000	.000	.021	.	.000
	N	986	971	985	981	979	979	965	978	976	979	971	988	988
Drinking Resistance Scale	Pearson Correlation	-.150	.134	-.096	-.359	-.153	-.171	.208	-.160	-.192	-.272	-.096	.714	1
	Sig. (2-tailed)	.000	.000	.003	.000	.000	.000	.000	.000	.000	.000	.003	.000	.
	N	986	971	985	981	979	979	965	978	976	979	971	988	988

Correlations of Variables in High School ATOD Analysis – Cohort 2 Cases Only

Correlations

		Age	White vs other	Gender	Self: How often consumed alcohol at party in last 12 months	Self: Days using tobacco in past 30 days	Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Perception: % in grade NO tobacco use	Perception of Tobacco Use Scale	Perception of Alcohol Use Scale	Perception of Marijuana Use Scale	Perception of Illicit Use Scale	Smoking Resistance Scale	Drinking Resistance Scale
Age	Pearson Correlation	1	.108	.035	.206	.157	.118	-.198	.282	.237	.219	.034	-.122	-.121
	Sig. (2-tailed)	.	.000	.102	.000	.000	.000	.000	.000	.000	.000	.114	.000	.000
	N	2244	1783	2238	2204	2207	2203	2179	2168	2163	2163	2163	2213	2213
White vs other	Pearson Correlation	.108	1	-.022	.051	.008	-.005	-.008	-.030	-.015	-.031	-.100	-.010	-.021
	Sig. (2-tailed)	.000	.	.359	.032	.725	.824	.741	.210	.518	.192	.000	.669	.377
	N	1783	1788	1782	1780	1783	1780	1763	1752	1748	1749	1747	1788	1788
Gender	Pearson Correlation	.035	-.022	1	-.010	.102	.004	.100	-.020	-.054	-.037	-.067	-.070	-.093
	Sig. (2-tailed)	.102	.359	.	.631	.000	.854	.000	.350	.011	.084	.002	.001	.000
	N	2238	1782	2246	2206	2209	2205	2181	2170	2165	2165	2164	2215	2215
Self: How often consumed alcohol at party in last 12 months	Pearson Correlation	.206	.051	-.010	1	.327	.571	-.254	.343	.407	.380	.170	-.312	-.410
	Sig. (2-tailed)	.000	.032	.631	.	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	2204	1780	2206	2214	2209	2205	2182	2170	2165	2166	2165	2214	2214
Self: Days using tobacco in past 30 days	Pearson Correlation	.157	.008	.102	.327	1	.428	-.170	.254	.168	.250	.133	-.192	-.179
	Sig. (2-tailed)	.000	.725	.000	.000	.	.000	.000	.000	.000	.000	.000	.000	.000
	N	2207	1783	2209	2209	2217	2211	2185	2173	2168	2168	2217	2217	2217
Self: Days using alcohol (other than few sips at family or religious occasion) in past 30 days	Pearson Correlation	.118	-.005	.004	.571	.428	1	-.206	.253	.300	.290	.233	-.201	-.239
	Sig. (2-tailed)	.000	.824	.854	.000	.000	.	.000	.000	.000	.000	.000	.000	.000
	N	2203	1780	2205	2205	2211	2213	2182	2169	2164	2165	2163	2213	2213
Perception: % in grade NO tobacco use	Pearson Correlation	-.198	-.008	.100	-.254	-.170	-.206	1	-.469	-.398	-.395	-.328	.179	.169
	Sig. (2-tailed)	.000	.741	.000	.000	.000	.000	.	.000	.000	.000	.000	.000	.000
	N	2179	1763	2181	2182	2185	2182	2189	2149	2144	2144	2143	2189	2189
Perception of Tobacco Use Scale	Pearson Correlation	.282	-.030	-.020	.343	.254	.253	-.469	1	.634	.640	.454	-.221	-.213
	Sig. (2-tailed)	.000	.210	.350	.000	.000	.000	.000	.	.000	.000	.000	.000	.000
	N	2168	1752	2170	2170	2173	2169	2149	2178	2151	2149	2154	2178	2178
Perception of Alcohol Use Scale	Pearson Correlation	.237	-.015	-.054	.407	.168	.300	-.398	.634	1	.619	.434	-.195	-.251
	Sig. (2-tailed)	.000	.518	.011	.000	.000	.000	.000	.000	.	.000	.000	.000	.000
	N	2163	1748	2165	2165	2168	2164	2144	2151	2173	2140	2143	2173	2173
Perception of Marijuana Use Scale	Pearson Correlation	.219	-.031	-.037	.380	.250	.290	-.395	.640	.619	1	.559	-.205	-.210
	Sig. (2-tailed)	.000	.192	.084	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	2163	1749	2165	2166	2168	2165	2144	2149	2140	2173	2154	2173	2173
Perception of Illicit Use Scale	Pearson Correlation	.034	-.100	-.067	.170	.133	.233	-.328	.454	.434	.559	1	-.076	-.086
	Sig. (2-tailed)	.114	.000	.002	.000	.000	.000	.000	.000	.000	.000	.	.000	.000
	N	2163	1747	2164	2165	2167	2163	2143	2154	2143	2154	2172	2172	2172
Smoking Resistance Scale	Pearson Correlation	-.122	-.010	-.070	-.312	-.192	-.201	.179	-.221	-.195	-.205	-.076	1	.690
	Sig. (2-tailed)	.000	.669	.001	.000	.000	.000	.000	.000	.000	.000	.000	.	.000
	N	2213	1788	2215	2214	2217	2213	2189	2178	2173	2173	2172	2223	2223
Drinking Resistance Scale	Pearson Correlation	-.121	-.021	-.093	-.410	-.179	-.239	.169	-.213	-.251	-.210	-.086	.690	1
	Sig. (2-tailed)	.000	.377	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.
	N	2213	1788	2215	2214	2217	2213	2189	2178	2173	2173	2172	2223	2223

## Correlations School Level Proportion of Tobacco Smokers

### Correlations

		Sch Prop Smoke last 30	Perception % never smoke	Age	Gender	White vs other	Self: How often consume alcohol	Self: Marijuana use frequency	Self: Illicit drug use frequency	Self: Days using marijuana in past 30 days	Grades Numerical	Self: Days using tobacco in past 30 days	Drank last 30 Days	Smoked last 30 Days
Sch Prop Smoke last 30	Pearson Correlation	.1	-.668**	.200**	.035*	-.070**	.136**	.121**	.096**	.131**	-.111**	.166**	.105**	.179**
	Sig. (2-tailed)	.	.000	.000	.047	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	3246	3246	3234	3235	2759	3177	3179	3187	3189	3153	3196	3192	3196
Perception % never smoke	Pearson Correlation	-.668**	1	-.203**	.017	.302**	-.092**	-.106**	-.043*	-.107**	.151**	-.125**	-.071**	-.120**
	Sig. (2-tailed)	.000	.	.000	.342	.000	.000	.000	.016	.000	.000	.000	.000	.000
	N	3246	3246	3234	3235	2759	3177	3179	3187	3189	3153	3196	3192	3196
Age	Pearson Correlation	.200**	-.203**	1	.022	-.014	.203**	.146**	.049**	.103**	-.078**	.150**	.155**	.160**
	Sig. (2-tailed)	.000	.000	.	.219	.459	.000	.000	.006	.000	.000	.000	.000	.000
	N	3234	3234	3234	3225	2752	3165	3167	3176	3177	3142	3184	3180	3184
Gender	Pearson Correlation	.035*	.017	.022	1	.004	.008	.063**	.028	.071**	-.071**	.078**	-.036*	.065**
	Sig. (2-tailed)	.047	.342	.219	.	.843	.644	.000	.114	.000	.000	.000	.040	.000
	N	3235	3235	3225	3235	2750	3166	3168	3176	3178	3142	3185	3181	3185
White vs other	Pearson Correlation	-.070**	.302**	-.014	.004	1	.023	.002	-.062**	-.018	.147**	.030	.036	-.001
	Sig. (2-tailed)	.000	.000	.459	.843	.	.239	.898	.001	.346	.000	.111	.063	.973
	N	2759	2759	2752	2750	2759	2727	2734	2739	2743	2744	2747	2744	2747
Self: How often consume alcohol	Pearson Correlation	.136**	-.092**	.203**	.008	.023	1	.454**	.265**	.316**	-.263**	.370**	.703**	.454**
	Sig. (2-tailed)	.000	.000	.000	.644	.239	.	.000	.000	.000	.000	.000	.000	.000
	N	3177	3177	3165	3166	2727	3177	3150	3160	3161	3121	3167	3163	3167
Self: Marijuana use frequency	Pearson Correlation	.121**	-.106**	.146**	.063**	.002	.454**	1	.474**	.706**	-.239**	.532**	.368**	.532**
	Sig. (2-tailed)	.000	.000	.000	.000	.898	.000	.	.000	.000	.000	.000	.000	.000
	N	3179	3179	3167	3168	2734	3150	3179	3169	3165	3127	3169	3166	3169
Self: Illicit drug use frequency	Pearson Correlation	.096**	-.043*	.049**	.028	-.062**	.265**	.474**	1	.451**	-.148**	.311**	.218**	.337**
	Sig. (2-tailed)	.000	.016	.006	.114	.001	.000	.000	.	.000	.000	.000	.000	.000
	N	3187	3187	3176	3176	2739	3160	3169	3187	3172	3133	3177	3173	3177
Self: Days using marijuana in past 30 days	Pearson Correlation	.131**	-.107**	.103**	.071**	-.018	.316**	.706**	.451**	1	-.166**	.536**	.278**	.445**
	Sig. (2-tailed)	.000	.000	.000	.000	.346	.000	.000	.000	.	.000	.000	.000	.000
	N	3189	3189	3177	3178	2743	3161	3165	3172	3189	3136	3187	3184	3187
Grades Numerical	Pearson Correlation	-.111**	.151**	-.078**	-.071**	.147**	-.263**	-.239**	-.148**	-.166**	1	-.226**	-.202**	-.250**
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	.000	.000	.000	.	.000	.000	.000
	N	3153	3153	3142	3142	2744	3121	3127	3133	3136	3153	3141	3138	3141
Self: Days using tobacco in past 30 days	Pearson Correlation	.166**	-.125**	.150**	.078**	.030	.370**	.532**	.311**	.536**	-.226**	1	.301**	.735**
	Sig. (2-tailed)	.000	.000	.000	.000	.111	.000	.000	.000	.000	.000	.	.000	.000
	N	3196	3196	3184	3185	2747	3167	3169	3177	3187	3141	3196	3190	3196
Drank last 30 Days	Pearson Correlation	.105**	-.071**	.155**	-.036*	.036	.703**	.368**	.218**	.278**	-.202**	.301**	1	.390**
	Sig. (2-tailed)	.000	.000	.000	.040	.063	.000	.000	.000	.000	.000	.000	.	.000
	N	3192	3192	3180	3181	2744	3163	3166	3173	3184	3138	3190	3192	3190
Smoked last 30 Days	Pearson Correlation	.179**	-.120**	.160**	.065**	-.001	.454**	.532**	.337**	.445**	-.250**	.735**	.390**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.973	.000	.000	.000	.000	.000	.000	.000	.
	N	3196	3196	3184	3185	2747	3167	3169	3177	3187	3141	3196	3190	3196

\*\* . Correlation is significant at the 0.01 level (2-tailed).

\* . Correlation is significant at the 0.05 level (2-tailed).