

# Operation Snowball Program and Evaluation Report

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## **Introduction and Background**

Operation Snowball began in 1977 in Rockford, Illinois when participants of the Illinois Teen Institute (ITI) were motivated to work towards establishing a drug-free society. The teens used the ITI model as a basis for a new, comprehensive, community-based prevention program; thus, Operation Snowball was borne. In 1979, Operation Snowball was incorporated so Snowball could be operated in other communities. Operation Snowball has a primary focus on alcohol, tobacco, and other drug prevention (ATODs), but also emphasizes the importance of diversity appreciation, healthy choices, and making a positive change in participants' schools and communities.

Operation Snowball is administered by the Illinois Alcoholism and Drug Dependence Association (IADDA), a professional statewide advocacy organization representing agencies and individuals involved in the prevention and treatment of ATODs. IADDA's primary focus is to advocate for public policy in Illinois and across the nation. Through more than 30 years of existence, Operation Snowball has had more than 20,000 program participants and utilized the services of more than 5,000 volunteers. These individuals, upon returning to their communities have started hundreds of prevention programs around the state, making a difference on and off campus in their own communities.

## **Defining the Problem**

ATODs continue to be pervasive among American youth. *The Surgeon General's Call to Action to Prevent and Reduce Underage Drinking* (U. S. Department of Health and Human Services [USDHHS], 2007) identifies underage alcohol

consumption as a serious public health and a safety problem with a myriad of untoward consequences for youth, their families, and the country as a whole.

Operation Snowball concentrates on providing awareness and prevention of ATODs while encouraging healthy decision-making in an active community of caring. In addition, Operation Snowball trains and empowers teens through “peer helping” to lead by example while educating their peers about substance abuse and other addictive behaviors. Grounded in peer helping, youth actively participate in planning, implementing, and evaluating chapter activities and events. Youth find Operation Snowball a rewarding experience and most continue to participate in living a healthy lifestyle even after high school.

### **Process to Identify Problem**

Several resources are utilized to identify the current trends and problems affecting Illinois youth. These resources aid Operation Snowball in determining the programming for each fiscal year. The Illinois Youth Survey (IYS) is one of the resources utilized. IYS is given biennially in the spring to students in grades 6, 8, 10, and 12, and provides estimates on substance abuse use in Illinois, as well as related problems such as youth violence. It measures key risk factors, such as access to drugs, peer drug attitudes, and family rules. In addition, the Substance Abuse and Mental Health Service Administration’s (SAMHSA) Strategic Prevention Framework, the “40 Developmental Assets,” ([www.search-institute.org/](http://www.search-institute.org/)) and state and national data on substance abuse are used and measured for assessment.

## **Program Goals**

- Delay or eliminate the onset of ATODs
- Develop effective life skills
- Develop positive leadership skills
- Increase community involvement and participation in ATOD prevention programming
- Increase intention to change ATOD use/abuse within the community/school
- Develop peer helpers/educators and leaders to promote drug-free behavior

## **Program Activities to Achieve Goals**

Operation Snowball offers youth and adults the opportunity to immerse themselves in an environment that provides intensive education about ATODs as well as the benefits of choosing to live a healthy lifestyle. Offering a variety of activities, OS provides comprehensive education and training to provide youth skills to recognize and reduce high-risk behaviors and to educate peers. Implementation materials, training, and support resources, and quality assurance procedure have been developed and are ready for use by the public (see program materials submitted with NREPP application).

Participants and staff gather at OS events to hear from motivational and/or informational speakers; providing each participant with the knowledge, skills, confidence, and inspiration to lead an ATOD-free lifestyle, strengthen leadership skills, and promote healthy decision making. Participants also may attend discussion groups to discuss and reflect on thoughts and feelings regarding the presentations. Each discussion group also takes part in games and activities designed to build skills, friendships, and self-esteem while networking. Workshops are intensive skill-based

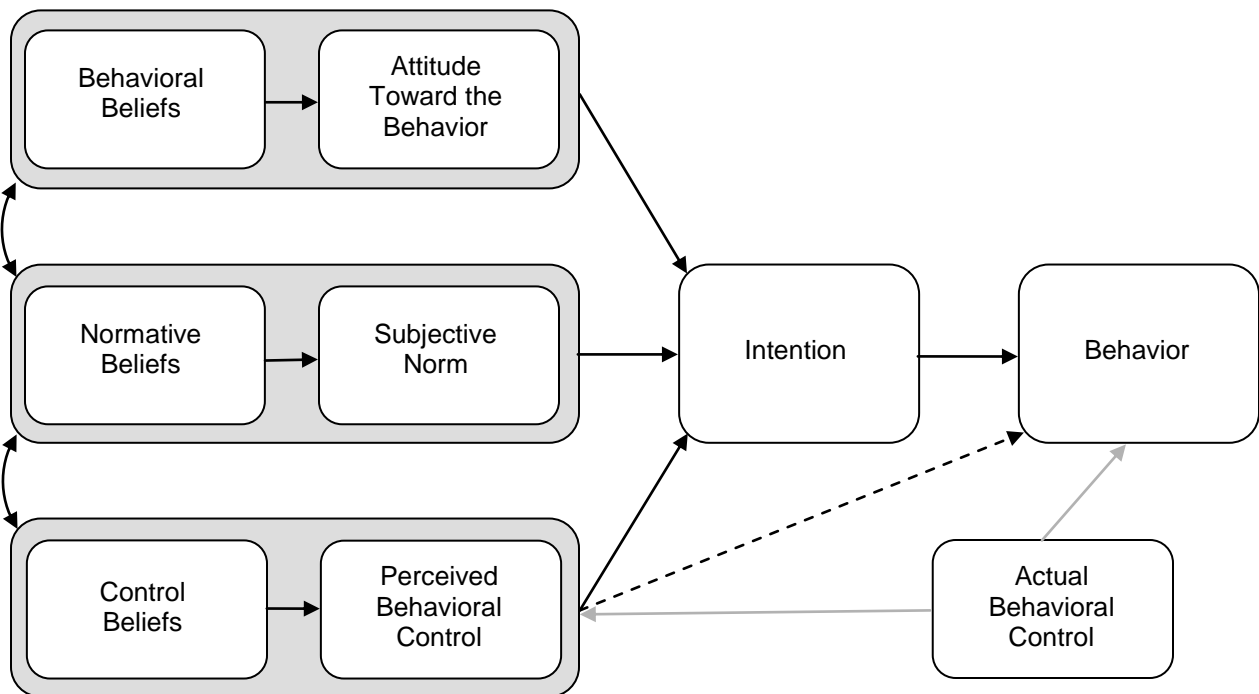
trainings that provide participants the opportunity to learn a specific skill set, as they relate to ATOD prevention and/or an opportunity for team and leadership development. OS provides support and encouragement for participants to act as change agents in their communities. They work on community campaigns such as Red Ribbon Week, Drunk and Drugged Drinking Month, Alcohol Awareness Month, and others. Participants go beyond “just say no” to embrace a more comprehensive strategies to prevent harmful behavior and promote healthy communities.

The National Association of Peer Program Professionals (NAPPP, 2009) offers certification to individuals, programs, curriculum, and trainer/consultants as part of its mission to help adults establish, train, supervise, maintain, and evaluate peer programs. Program superiority is more likely if the program adheres to NAPPP’s (2007) *Programmatic Standards and Ethics* (Black, Tobler, & Sciacca, 1998). In 2005, Operation Snowball received distinction of Certified Peer Program from NAPPP. This distinction ensures that Operation Snowball is meeting the standards, practices, and ethics promoted and researched to be effective by NAPP.

## **Evaluation**

A quasi-experimental pre-posttest design was used. This design was recommended by members of a pre-selected research team in order OS meet criteria to ultimately become an “evidence-based” program. The team or researchers was comprised of 4 leading scholars country-wide. Their backgrounds were public health and psychometric, community health and programming, and statistics. Three of the 4 were full professors and the remaining member was a highly regarded assistant professor.

The evaluation process was initiated by updating the program to comply with the stated goals and outcomes related to the Theory of Planned Behavior (TPB) and national standards. OS is based on Icek Ajzen's (1988, 1991) Theory of Planned Behavior, which notes that human action is guided by six constructs: behavioral beliefs; attitudes; normative beliefs; subjective norms; control beliefs; and perceived control. According to Theory of Planned Behavior (TPB), increasing knowledge alone does not help to change behavior. Youth programs seeking to change behaviors must focus on attitudes, perceived norms, and control in altering behavior. Procedures for developing the questionnaire are explained in more detail below under **Evaluation Procedures**.



**Figure 1.** Theory of Planned Behavior from Icek Ajzen's webpage, *TPB Diagram*, <http://www.people.umass.edu/ajzen/tpb.diag.html>. Copyright 2006 by Icek Ajzen. Reprinted with permission of the author.

From 2004-2007, a pre- and post- survey was administered to all participants in the Naperville, Illinois Operation Snowball chapter (see enclosure titled Survey). The specific purpose of the survey is to obtain baseline TPB measures regarding ATOD use. A secondary purpose of the survey is to evaluate changes in beliefs by administering the survey on 2 follow-up occasions to determine if the program had a positive impact on reducing ATODs.

### **Evaluation Procedures**

The Office of Research Compliance at the University of North Carolina at Greensboro approved the qualitative study and quantitative survey and their administration. Data collection and analyses were approved by the Instructional Study Review Board at Utah State University.

The specific guidelines identified by Ajzen (1988, 1991) were used to develop a Theory of Planned Behavior (TPB) evaluation instrument. Ajzen's (2006, <http://www.people.umass.edu/aizen/pdf/tpb.measurement.pdf>) specific steps include developing measures for the TPB constructs via a qualitative study to elicit behavioral, normative, and control beliefs from the population of interest in ATODs. A series of open-ended questions were developed. Elicited beliefs were counted and similar beliefs were grouped together, and the number and kinds of beliefs in each group were developed the modal belief sets. This process is similar to identifying themes in qualitative studies.

Those beliefs in the modal belief sets that were elicited first and most frequently were used to construct the belief measures. Another element taken into consideration were positive and negative outcome expectancies, normative referents, and control

factors within the modal belief sets. This information was used to construct the behavioral belief, normative belief, and control belief scales, respectively. Next a questionnaire was developed. The questionnaire included behavioral beliefs, normative beliefs, control beliefs, attitude, subjective norm, perceived behavioral control, intention and behavior relative to ATODs.

## **Outcomes**

The outcomes are being reported in this document for the first time. A total of 688 youth participated in Naperville OS during the 2004-2007 data collection years. Of these, approximately 421 (61%) completed the survey at both pre- and post-test times.

For these 61% of Naperville OS participants, it was possible to compute a difference in response on each OS survey item between pre- and post-test to assess changes in base beliefs (items of Questions 1 and 2); normative beliefs (items of Questions 3 and 4); control beliefs (items of Question 5); attitudes (items of Question 6); subjective norms (Questions 7-10); perceived behavioral control (Questions 11-13 and self-efficacy items of Question 14); and intention (Questions 15-18), for the TpB scales. Each item was rated on a 1-5 scale with 5 being “best” for ATOD avoidance and 1 being “worst.” Thus, means between 4 and 5 for TpB scale items would indicate that Naperville OS participants possessed base beliefs, norms, and controls beliefs consistent with ATOD avoidance. Item means between 3 and 4 also are on the positive side of the ATOD avoidance scale.

In addition to TpB scale items, ATOD use in the last month (or lifetime in the case of alcohol) was assessed. For ATOD use scales, 1 indicates no usage at all, 2 indicates 1 use, and so on, and thus means close to 1 would indicate that Naperville OS

participants were, for the most part, not engaging in ATOD use.

### **Keeping Healthy Kids Healthy**

Table 1 provides the *M* and *SDs* for each TpB scale item, identified in the same order as they appear in the OS survey instrument, at pre-test and at post-test, followed by the *M* and *SDs* of the post-test minus pre-test scores for all participants and a *t*-test and associated *P*-value for assessing whether there was a significant change in item mean between pre- and post-test.

The majority of item *M* at pre-test are between 4 and 5, demonstrating a high level of ATOD-avoidance base, normative, and control beliefs among Naperville OS participants, as well as healthy attitudes towards ATOD avoidance (Question 6 items), subjective norms (Questions 7-10), and perceived behavioral control (Questions 11-14). In particular, the pre-test means are well above 4 for the items related to intention to avoid ATOD use (Questions 15-18), indicating that this was a healthy sample of youth participants to begin with, which resulted a ceiling effect. Minor exceptions to this healthy state of ATOD avoidance occur on the items of Question 4 (Normative Belief scale items), but even here the *M* are indicative of healthy norms for ATOD avoidance. In keeping with this generally healthy ATOD-avoidance profile, post-test *M* are similar to pre-test means, demonstrating consistent healthy ATOD avoidance beliefs, attitudes, norms, and intentions were maintained after completion of the OS program by these participants.

Overall, ATOD use behaviors have pre- and post-test means close to 1 (slight exception for alcohol use, with a pre-test mean of 1.42), indicating low ATOD usage levels for this sample of Illinois youth.

To more formally assess that the OS program helps to keep kids healthy, Table 1 presents (multiple) *t*-tests used to determine if there was a significant change in mean item response (either positive or negative) between pre- and post-test times. Because there are 66 *t*-tests in Table 1, all using the same group of participants, the Bonferroni adjustment technique was applied and a significant change in mean response declared only if the observed *P*-value is less than  $0.05/66 = 0.0007576$ .

None of the *P*-values in Table 1 is below this Bonferroni-adjusted *P*-value of 0.0007576, thus no significant change in *M* item value, in either direction, for any TpB scale item or ATOD use measures, occurred between pre- and post-test for these Naperville OS participants. Observing the column of *M* differences, many are positive, indicating a (non-significant) improvement in that particular item between pre- and post-test and thus, a modest improvement in ATOD avoidance beliefs, norms, attitudes, etc. However, it should be noted that, for many of these TpB scale items, a “ceiling” effect is present because the pre-test means are often above 4.0 (on a 1-5 scale); therefore, providing little opportunity for any improvement, significant or otherwise, in the item *M*. This same ceiling effect is likely responsible for the negative mean differences on several items because the scale provides more scope for a lower response at post-test when the pre-test values are already in the 4 to 5 value, but it must be noted that none of the declines in *M* item response was statistically significant.

Table 1: *Items of Theory of Planned Behavior Results*

Naperville 2004-2007 Summary Table								
OS Item/Scale	Pre Test		Post Test		Difference(Post-Pre) (n=421)			
	M	SD	M	SD	M	SD	t	p-Value
1a Health	4.79	0.68	4.82	0.70	0.00	0.94	0.00	1.0000
1b Trouble	4.66	0.73	4.71	0.71	0.07	0.92	1.45	0.1489
1c Tease	3.87	1.08	3.83	1.18	-0.08	1.30	-1.18	0.2405
1d Money	4.58	0.83	4.67	0.76	0.04	0.99	0.83	0.4075
1e Mental	4.69	0.71	4.68	0.73	-0.04	0.93	-0.77	0.4430
1f Fit In	4.26	0.91	4.35	0.86	0.05	1.03	0.99	0.3227
1g Friends	4.32	0.91	4.37	0.92	0.05	1.09	0.89	0.3748
1h Unhealthy	3.89	1.44	3.99	1.41	0.13	1.74	1.44	0.1503
1i Longer	4.56	0.92	4.46	1.10	-0.15	1.32	-2.20	0.0285
2a Health	4.93	0.36	4.94	0.32	0.01	0.45	0.34	0.7362
2b Trouble	4.80	0.51	4.78	0.57	-0.02	0.65	-0.71	0.4789
2c Tease	4.29	0.96	4.22	1.00	-0.12	1.23	-1.99	0.0472
2d Money	4.79	0.53	4.82	0.49	0.03	0.69	0.82	0.4143
2e Mental	4.90	0.36	4.87	0.47	-0.04	0.52	-1.48	0.1396
2f Fit In	3.69	0.96	3.64	1.03	-0.09	1.13	-1.54	0.1255
2g Friends	4.53	0.70	4.41	0.83	-0.14	0.90	-3.11	0.0020
2h Unhealthy	4.66	0.79	4.56	0.95	-0.15	1.16	-2.50	0.0127
2i Longer	4.83	0.56	4.79	0.69	-0.04	0.84	-1.03	0.3024
3a Friends	4.33	0.91	4.27	0.99	-0.11	0.96	-2.17	0.0303
3b Family	4.84	0.55	4.76	0.65	-0.09	0.76	-2.43	0.0155
3c Parent	4.89	0.46	4.83	0.55	-0.08	0.66	-2.41	0.0163
3d Teacher	4.86	0.47	4.82	0.54	-0.06	0.66	-1.85	0.0656
3e Peers	4.00	0.99	3.94	1.08	-0.10	0.97	-2.06	0.0399
3f Religious	4.79	0.63	4.68	0.71	-0.10	0.84	-2.33	0.0205
4a Friends	3.66	1.36	3.44	1.38	-0.13	1.73	-1.50	0.1343
4b Family	3.89	1.45	3.70	1.53	-0.13	1.83	-1.41	0.1582
4c Parent	3.83	1.51	3.68	1.56	-0.14	1.85	-1.45	0.1470
4d Teacher	3.48	1.49	3.32	1.50	-0.11	1.84	-1.20	0.2293
4e Peers	3.33	1.38	3.16	1.35	-0.09	1.67	-1.06	0.2919
4f Religious	3.61	1.53	3.26	1.56	-0.26	1.82	-2.78	0.0057
5a Friends	4.69	0.74	4.65	0.77	-0.06	0.99	-1.25	0.2126
5b Pressure	2.99	1.29	3.10	1.26	0.18	1.55	2.29	0.0226
5c Busy	4.46	0.87	4.49	0.88	-0.01	1.10	-0.09	0.9257
5d Availability	4.37	0.95	4.35	1.02	-0.04	1.21	-0.64	0.5250
5e Beliefs	4.50	0.90	4.47	0.94	-0.03	1.09	-0.57	0.5714
5f Use	3.41	1.38	3.58	1.37	0.24	1.71	2.77	0.0059
6a Pleasant	4.34	1.22	4.34	1.21	-0.01	1.57	-0.13	0.8939
6b Interesting	3.95	1.26	4.08	1.28	0.11	1.56	1.41	0.1609
6c Unhealthy	4.03	1.58	4.07	1.55	0.05	2.05	0.43	0.6650
6d Enjoyable	4.13	1.35	4.21	1.30	0.07	1.57	0.80	0.4265
6e Good	4.31	1.28	4.41	1.20	0.06	1.45	0.83	0.4070
6f Awful	4.18	1.37	4.26	1.31	-0.02	1.59	-0.20	0.8438
6g Valuable	4.22	1.30	4.33	1.26	0.08	1.53	0.96	0.3392
6h Helpful	4.25	1.33	4.32	1.27	0.00	1.54	-0.03	0.9730
7 Expect	4.68	0.79	4.67	0.79	-0.06	0.94	-1.14	0.2546

8 Important	4.69	0.73	4.63	0.82	-0.11	0.96	-2.31	0.0215
9 People	4.08	1.19	4.12	1.16	0.00	1.44	-0.04	0.9716
10 Opinion	4.36	0.95	4.41	0.88	0.03	1.05	0.49	0.6246
11 Not Use	4.63	0.76	4.62	0.80	-0.04	0.87	-0.82	0.4101
12 Control	4.74	0.67	4.76	0.66	-0.01	0.72	-0.29	0.7744
13 Confidence	4.52	0.81	4.49	0.85	-0.09	0.81	-2.08	0.0382
14a Party	4.43	0.82	4.45	0.86	-0.03	0.87	-0.71	0.4756
14b Pressure	4.43	0.80	4.45	0.86	-0.03	0.89	-0.58	0.5618
14c Family	4.54	0.77	4.54	0.81	-0.03	0.87	-0.66	0.5124
14d Sad	4.53	0.77	4.55	0.80	-0.01	0.89	-0.12	0.9076
14e Happy	4.62	0.72	4.61	0.79	-0.05	0.85	-1.10	0.2739
14f Fit In	4.54	0.76	4.58	0.78	0.00	0.84	0.06	0.9507
14g Easy	4.54	0.81	4.56	0.83	-0.03	0.88	-0.77	0.4436
15 Intend	4.65	0.81	4.62	0.87	-0.05	1.03	-0.95	0.3410
16 Try	4.54	0.90	4.52	0.91	-0.05	1.05	-0.93	0.3505
17 Effort	4.72	0.83	4.72	0.84	0.01	1.16	0.13	0.8940
18 Likely	4.36	1.10	4.35	1.15	-0.02	1.35	-0.28	0.7809
<b>Monthly ATOD Behavior Measures</b>								
Tobacco Mth	1.03	0.17	1.07	0.44	0.04	0.42	1.70	0.0896
Alcohol	1.42	0.72	1.47	0.85	0.10	0.80	2.42	0.0159
Drugs Mth	1.01	0.10	1.04	0.34	0.02	0.30	1.32	0.1870
ATOD Behavior	1.16	0.29	1.20	0.44	0.06	0.40	2.65	0.0084

### Percentage Responding the Same or Better at Post-Test on OS Items

The previous summary analyses demonstrated that the OS program keeps healthy kids healthy, but the “ceiling” effect when comparing item *M* on the OS items makes it difficult to identify a significantly positive effect of the OS program on base, normative, and control beliefs about ATOD avoidance and subsequent attitudes, subjective norms, perceived behavioral control, and intentions towards ATOD avoidance. To better observe that there is a positive impact of the OS program, Table 2 provides a second summary of participants’ responses to the TpB scale items. In this table, for each item, Table 2 presents the percentage of participants who responded the “same or better” (i.e., towards the upper limit of 5 on each TpB scale item, or towards 1 for the ATOD use measures) from pre- to post-test.

From Table 2, it is apparent that a majority of Naperville OS participants, typically well in excess of 80% on many items, had the same or better base beliefs, norms, control beliefs, attitudes, perceived control and intentions (to avoid ATOD use) at post test after attending an OS program when compared with pre-test responses. Only the items of Question 4 (normative belief scale items) are consistently below a threshold of 80% “as good as or better” and even on these items the percentage is 65-70%. Much the same is true of the ATOD use measures for tobacco and drugs, with the exception of alcohol usage which is always the highest ATOD use measure and, because it measures lifetime alcohol use, cannot decrease between pre- and post-test.

More formally, if the OS program had no impact on participant responses and participants were responding randomly, then we would expect similar percentages of participants to increase, decrease or leave unchanged their response to any item, or in the context of Table 2, we would expect the observed “same or better” percentage to be about 66.67% (i.e., 2/3). A positive impact of the OS program would then be evident whenever the percentage in Table 2 is significantly above 66.67%. This occurs on a majority of OS items, the primary exception being the items of Question 4 and the alcohol and overall ATOD use items. OS items with the percentage the “same or better” significantly above 66.67% are identified by an “\*” after the percentage in Table 2, and this occurs whenever the item percentage is at or above 74% for the *n*-size in this sample. The Bonferroni-adjusted significance level of  $\alpha = 0.0007576$  has been used, as in Table 1, to determine those items with a percentage significantly greater than 66.67%.

Table 2: *Percent Responding Same or Better at Post Test on TpB Scale Items and ATOD Use Measures*

<b>Naperville 2004-2007 % Same or Better at Post-Test</b>		
<b>OS Item/Scale</b>	<b>%</b>	<b>SD</b>
1a Health	95*	23
1b Trouble	90*	30
1c Tease	72	45
1d Money	88*	33
1e Mental	87*	34
1f Fit In	81*	39
1g Friends	82*	39
1h Unhealthy	79*	41
1i Longer	82*	38
2a Health	97*	18
2b Trouble	91*	29
2c Tease	77*	42
2d Money	91*	28
2e Mental	94*	23
2f Fit In	74*	44
2g Friends	79*	40
2h Unhealthy	83*	37
2i Longer	91*	28
3a Friends	77*	42
3b Family	86*	35
3c Parent	90*	31
3d Teacher	90*	30
3e Peers	76*	43
3f Religious	86*	35
4a Friends	65	48
4b Family	70	46
4c Parent	70	46
4d Teacher	66	48
4e Peers	65	48
4f Religious	65	48
5a Friends	85*	36
5b Pressure	71	46
5c Busy	82*	39
5d Availability	80*	40
5e Beliefs	84*	37
5f Use	74*	44
6a Pleasant	82*	39
6b Interesting	78*	41
6c Unhealthy	81*	39
6d Enjoyable	83*	37
6e Good	86*	35
6f Awful	82*	39
6g Valuable	84*	37
6h Helpful	82*	38
7 Expect	86*	35
8 Important	84*	37

9 People	72	45
10 Opinion	81*	39
11 Not Use	87*	34
12 Control	90*	30
13 Confidence	78*	42
14a Party	86*	35
14b Pressure	83*	37
14c Family	83*	37
14d Sad	86*	35
14e Happy	87*	34
14f Fit In	86*	35
14g Easy	86*	35
15 Intend	85*	36
16 Try	82*	38
17 Effort	90*	29
18 Likely	78*	42
<b>Monthly ATOD Use % Same or Better</b>		
Tobacco Mth	96*	20
Alcohol	73	45
Drugs Mth	97*	16
ATOD Behavior	72	45

### Survey Conclusions

The OS program produces a percentage significantly greater than would be expected by chance responding the “same or better” at post-test (for ATOD avoidance beliefs, attitudes, skills and intentions) on a large majority of TpB scale items that are measured by the OS survey.

### ATOD Usage Rates: Comparison with Statewide Norms

The percentage of Naperville OS participants in 2004 and 2006 reporting usage of alcohol, cigarettes or marijuana in the last month at post-test (follow-up) is presented in Table 3. Listed for comparison purposes is the overall statewide percentage for each gateway substance (for grades 8, 10 and 12 combined) for each of the years 2004 and 2006.

Table 3: *Post-test Percentage of Naperville OS Participants in 2004 and 2006 Using Alcohol, Cigarettes or Marijuana in the Last Month and Comparison to Statewide Norms*

2004		2006	
Naperville % (n = 97)	Statewide %	Naperville % (n = 109)	Statewide %
<b>Alcohol</b>			
14.4	36.3	12.8	40.7
<b>Cigarettes</b>			
6.2	17.7	1.8	16.0
<b>Marijuana</b>			
3.1	15.4	2.8	16.6

For both comparisons years, and all three ATOD substances, the percentage of Naperville OS participants using the substance in the last month is significantly less than the statewide percentage,  $P < 0.0001$  in all cases. The same significantly lower usage rates also occur when the Naperville OS usage rates for years 2005 and 2007 (not shown) are compared with the statewide usage rates shown for either 2004 or 2006.

### **Statewide Conclusions**

Naperville OS participants demonstrate significantly lower ATOD usage rates than statewide norms for alcohol, cigarettes, and marijuana at follow-up, indicating that OS participants remain significantly healthier in terms of ATOD avoidance than their statewide peers.