

## Teen AA Survey

Research Results for Teen Addiction Anonymous rebranded to MPOWRD (same procedure)

In order to assess the strengths and weaknesses of the Teen Addiction Anonymous (Teen AA) program and its effectiveness on middle school and high school students, an evaluation instrument was created. This instrument evaluates the students' self-perception before their participation in the Teen AA program, and then again six sessions into the program. Research evaluates students on the following conditions: decreasing the amount of drug and alcohol use, controlling addictive behavior, feeling safe, making good choices concerning drugs and alcohol, having good relationships with families, doing well in school, having a good self-concept, making plans about the future, and supporting friends dealing with similar challenges. In addition, students are assessed on their performance in school using attendance counts and grade point averages. Since these raw data counts are not subjective (meaning objective), a survey will not be used.

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#### *Initial Data*

Upon entering their first Teen AA meeting, students will be given three items: an identification number (for research purposes only), an envelope, and a survey. The facilitator of the meeting will assign each new student a number, record the number with the respective student's name in a record book, and then write the number on top of the Teen AA Survey (See Appendix A) in the provided space. The purpose of the ID number is twofold. First, since the organization protects the anonymity of all students who attend, it's important for the students to answer the questions as honest as possible. Second, to eliminate bias amongst the researchers or those who facilitate meetings, a coded variable helps eliminate any preconceptions or influences of promotion from the Teen AA intervention.

#### *Surveys*

The Teen AA Survey follows the Manchester scale for collecting and organizing data. Students will be asked to complete a survey upon entering their first Teen AA meeting. Once completed, they will place the survey in the provided envelope and then seal it. Then, the students will be allowed to attend as many meetings as they like. However, upon entering their seventh meeting, they will be asked to complete the same Teen AA Survey where their respective scores will be compared to their initial responses.

For the second data collection period, the researcher or meeting facilitator will need to code the top of the survey with the same ID number as the originally assigned number given before their first meeting. Coded numbers can be recalled from the record book. When the second set of surveys is completed, each survey will be paired with its respective initial survey (at the conclusion of the meeting).

#### *Analysis*

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Once all the respective surveys are paired, a match paired t-test will be used to test whether students as a whole showed significant growth in any one area. For example, for Teen AA Survey question 5, all of the students initial and post scores for that respective question will be compared, and then analyzed as a group to see if there was significant growth relating to that question. In this case, the research will tell whether or not students “feel more confident in knowing there is a ‘safe place’ for dealing with issues” as a result of attending Teen AA meetings. Similar tests and analysis will be made from the remaining nine survey questions

### *Conditions of the Research*

Since it is the assumption that Teen AA produces positive behaviors amongst its participants, the matched pairs t-test will have a null hypothesis where the average difference in scores (Initial Score – Post Score) is zero, and an alternative hypothesis suggesting that the average difference in scores is greater than zero, or less than zero, depending on the question. Significance levels for each question will be 95% confidence. It will be also assumed that the sample of scores for each question will be no less than 40. Tests for outlier and graphs for skewedness will be made for each set of questions as well.

### *Limitations of the Research*

While it is the hope that the Teen AA program provides a strong intervention for helping teenagers with their dependency with addiction, the results cannot be recognized as 100% generalizable for the following reasons. First, the participants are not from a random sample; they are volunteers. Ideally, it would more substantial to pool random subjects from a collection of all students who are entering the Teen AA program. However, the program has yet to develop into a program involving hundreds of students at one time. Therefore, all participating students will be asked to fill-out a survey to obtain some judgment toward statistical inference. Second, the Manchester scale is a finite scale where differences in scores can only range from -10 to 10. It's possible that the distribution of score differences may appear abnormal. Finally, other outside variables may have an influence on the positive behaviors of the participating students. For example, the motivation for attending such a meeting suggests that one is seeking help and ready to accept guidance for conquering their addiction. One may think it's the drive of the student that most influential with conquering the disease an opposed to the intervention alone. Regardless, with a large group of subjects, the results of the survey will provide evidence as to whether students are benefiting from the Teen AA intervention. And since drug and alcohol abuse is a universal addiction across the United States amongst teenagers, it is believed the research results found within the initial group of students can be generalized to most students under similar circumstances (demographics, age, race, economic status). Future research can include comparisons of students of differing subpopulations.

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### Data Scores for Student Performance

In addition to the Teen AA Survey, a matched paired t-test will be used to evaluate growth in the students' performance in the classroom (See Appendix B). Initial data will be obtained by the counting each student's absent days from the previous quarter of school. New data will be collected for the number of absent days for the following semester once a student has attended six or more meetings. Differences in absent days will be computed for each student's semester grading period (New data - Initial data). Similar calculations will be made with students regarding their grade point average and behavioral referrals.

### *Limitations of Research Regarding Data Scores*

While this portion of the research is more objective, it does have limitations. First, as stated previous, the study is not randomized. All subjects participating in the study are volunteers. However, again, it is believed by the research team that the results are generalizable since alcohol and drug addiction is universal amongst teenagers across the United States. Second, differences in performance in school relating to absences and grades can be attributed to many things. For example, a student entering the Teen AA program after the first quarter of school may show significantly less absences during the second quarter of school than the first quarter. One may infer that the Teen AA program helps motivate their participants to think more positive about school and to attend more often. However, it may be that in general all students attend class more often during the second quarter because of other outside influences (vacation travels during the first quarter, laziness after a long summer, etc.). Such comparisons will have to be considered when making inferences toward the teen population.

### *Results*

During the 2011-2012 school year, sixty different students completed a minimum of six weeks of the Teen AA program. The students who completed the program came from six different high schools in the southwest United States ranging from low economic, border-towns to economically elite suburbs. Of the sixty students, fifty eight identified their race or ethnicity: 35 Hispanic, 20 White, 2 African-American, and 1 Native American.

### Drug Abuse or Mind-Altering Data

Each of the sixty students completed a pretest and a posttest evaluation where differences in scores were compared. Of the sixty students who participated, twenty one participated in the Teen AA program for an additional six weeks, where a second set of data was collected comparing the difference in scores from the second test to the third test (6-week posttest – 12 week posttest). By the end of the school year, it was possible to have a total of eighty one different data entries for each of the respective assessment questions.

While many of the assessment questions demonstrated a difference in behavior with their addictions and personal lives, one question showed a significant improvement in the decline of

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addiction. Question 2 asked students to circle the number of times they smoked marijuana or used a mind-altering substance each day (See *Image 1*). Once pretest and posttest data were collected, a match-pairs *t*-test was used to compare the difference in scores between individual addicts. The data showed that teens who used drugs or mind-altering substances on a daily basis showed a statistically significant decline in their addictive behavior after attending six sessions of Teen Addiction Anonymous ( $t=-1.88164$ ,  $df=30$ ,  $p=.0348$ ,  $\alpha=.05$ ).

2.	From a scale of 0 through 10, how many times a day do you smoke marijuana or use a mind-altering substance?										
	0	1	2	3	4	5	6	7	8	9	10

*Image 1*

### Graded Point Averages and Referrals

In addition to the attitudinal surveys, high school counselors and group facilitators were asked to track the students' GPA's, absence counts, and behavior referral counts as they attended class throughout the 2011-2012 school year. For most, the recorded data reflected three different time periods: the end of spring 2011 semester (initial data), the end of the fall 2011 semester, and the end of the spring 2012 semester. Only students who began the program toward the end of the 2011-2012 school year, or left the program early, would have missing data pieces. Again, a matched pairs *t*-test was used to compare individual differences amongst the respective categories. For this analysis, results showed a statistically significant improvement in students' GPA's for those teens who began the Teen Addition Anonymous program in the fall 2011 school year. Their fall 2011 GPA's were higher when compared to their GPA's the previous spring 2011 semester ( $t=2.061$ ,  $df=48$ ,  $p=.02237$ ,  $\alpha=.05$ ). Further, students who attended the Teen Addiction Anonymous program during the fall 2011 semester significantly lowered their absence total from the previous spring 2011 semester ( $t=-2.280$ ,  $df=48$ ,  $p=.01658$ ,  $\alpha=.05$ ).

### Remarks Regarding Attitudinal Survey

While the attitudinal study showed positive results regarding the teens' ability to conquer addictions, two factors arose while evaluating the data. First, many were asked to answer questions involving addictions for which they weren't applicable. For example, Question 2 asked teens to circle the number of times per day they used drugs or a mind altering substance. Fifty out of the 81 students who completed the program circled a score of "0" for both the pretest and posttest. This suggested that those students did not use drugs on a daily basis during any point of the program. While it was gratifying to know that such a high percentage of students were not abusing drugs, it altered the research calculations. Students who circled "0" for both tests showed no improvement with that addiction. Therefore, the researcher performed two different calculations involving each of the ten research questions. The first test statistic included all who completed the program, including those who submitted for a "0" for each of the pretest and posttest questions. A second calculation was performed in the same manner.

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However, those who submitted a “0” for each of the questions had those respective values removed. This resulted in a lower sample size for each question within the survey and a smaller degree of freedom for each  $t$ -statistic. While such calculations typically weaken statistical results for categorizing data as being *statistically significant*, they did not change the conclusions for any of our research questions. Further, the distribution of values for Question 2 still resulted in an approximately normal distribution, satisfying the conditions for a  $t$ -test. The calculations made for this condition were stated previous.

A second concern relates to the importance of having independent values from the subjects. In some instances, two or three data values came from the same student due to the repeated 6-week intervals for which the students participated in the program. One may assume that a data value from one test subject may influence other values from the same subject. However, this didn't prove to be influential for Question 2. Had the additional values from Teen AA participants been eliminated from the sample of data, the remaining data would still produce an approximately normal distribution and provide a  $p$ -value smaller than the alpha cut-off of .05 ( $t=-1.79545$ ,  $df=21$ ,  $p=.04349$ ,  $\alpha=.05$ ); thus, providing an outcome that's statistically significant.

### Remarks Regarding GPA's, Absences, and Referrals

The primarily goal of Teen AA is to reduce addictive behavior. However, it's important to note any additional influences the program may have had on students' academic and behavioral performances within their school. As stated previous, students who attended the Teen AA program for six weeks showed a significant improvement in raising their GPA and lowering their absent total during the fall semester of school. And while the statistics should provide some level of promise to the counselors and students, there are items to consider involving those statistical results. First, the research involving GPA's, absences, and referrals didn't have a control group within the research. So, while students who attended Teen AA during the fall semester demonstrated a significant improvement in their academics and behavior when compared to the previous semester, it's possible that all students from the same schools improved at the similar rate. If this is the case, then who's to say that reducing addictive behavior has any correlation with improving GPA or reducing absent totals? It could be that all students, in general, have a higher GPA and lower absent totals during the first semester of school than the second. Only further research regarding this issue will help resolve this dilemma.

Second, while the data showed significant results for the fall semester of school, the research also showed that students didn't improve their academics and their absences the following spring semester. In fact, for as much as the students improved during the fall semester with their GPA, they retracted an even greater amount during the spring semester. This could've happened for a number of reasons. One may believe that students traditionally perform better during the fall semester due to the “fresh start” that so many feel after a long summer break. Others may attribute the decline in grades to those seniors within the program who are doing “just enough” to graduate during the spring semester. Further studies may include

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questionnaires asking students to list their grade level in school. Only then may we be able to come to some resolution to this unique change in grade performance.

### *Concluding Thoughts*

Students who participated in the Teen AA program showed promising results with controlling their drug addictions, as well improving their performance in school. Nevertheless, as great as those changes were, improvements within the program need to be made. One point of emphasis will be to inform the counselors who run Teen AA to observe the students' academic performance as they move through the spring semester. Any academic encouragement that can be passed along to the students may eliminate the rebound effect that occurred with GPA this past year. Further, stake-holders in the Teen AA program need to understand that while the increase in GPA after the fall semester is always encouraged amongst the students, *maintaining* that same GPA during the spring semester should still be recognized as a success. For example, it's possible for a student to improve his or her GPA from a 2.2 to a 3.4 during the fall semester of the Teen AA program. However, improving a GPA at the same rate during the following spring semester may not be mathematically possible based on the classes the student takes. Similarly, a student may have had 10 absences during one semester, and then decreased his or her absent total to a respectable one or two absences the following semester. Again, while the improvement for this decline was fantastic, there is little to build upon for the next semester. It's difficult for students to improve an absent rate when the initial value is so low.

Gains were made for other addictions. However, they did not prove to be statistically significant. A decrease in alcohol use ( $t=-.48535$ ,  $df=26$ ,  $p=.315746$ ,  $\alpha=.05$ ) and tobacco use ( $t=-.10202$ ,  $df=26$ ,  $p=.45976$ ,  $\alpha=.05$ ) is of some value, but interventions need to be made in order to make the decline for these addictions even more profound. Similarly, the number of student referrals declined some for each of the two semesters amongst Teen AA participants ( $t=-.926$ ,  $df=27$ ,  $p=.1813$ ,  $\alpha=.05$  and  $t=-.895$ ,  $df=31$ ,  $p=.18884$ ,  $\alpha=.05$ ). With a little encouragement from counselors and Teen AA group leaders, there is no doubt this obstacle for success can be conquered as well.

# Appendix A

Teen AA Student Number \_\_\_\_\_

Date \_\_\_\_\_

The following survey asks you to represent your feelings based on the scale of numbers, one through ten. Please complete the following questions by **CIRCLING** one number for each question.

1. From a scale of 0 through 10, how many times a day do you have an alcoholic drink?

0      1      2      3      4      5      6      7      8      9      10

2. From a scale of 0 through 10, how many times a day do you smoke marijuana or use a mind-altering substance?

0      1      2      3      4      5      6      7      8      9      10

3. From a scale of 0 through 10, how many times a day do you participate in your addictive behavior?

0      1      2      3      4      5      6      7      8      9      10

4. **Approximately** how many times a day do you use tobacco?

0      2      4      6      8      10      12      14      16      18      20+

5. From a scale of 1 through 10, how confident do you feel there is a "safe place" offering support for dealing with personal problems?

1      2      3      4      5      6      7      8      9      10  
Not Very      Very  
Confident      Confident

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6. From a scale of 1 through 10, do you feel that you have good relationships with family members?

1	2	3	4	5	6	7	8	9	10
Poor Relationships with Family									Good Relationships with Family

7. From a scale of 1 through 10, do you believe that you are doing the best job that you can in school?

1	2	3	4	5	6	7	8	9	10
Poor in School									Well in School

8. From a scale of 1 through 10, do you feel good about the person who you are?

1	2	3	4	5	6	7	8	9	10
Poor Self-concept									Good Self-concept

9. On a scale of 1 through 10, do you see yourself making positive plans for the future?

1	2	3	4	5	6	7	8	9	10
Not Making Positive Plans									Making Positive Plans

10. On a scale of 1 through 10, how likely would you recommend this program to a friend who was having a difficult time and wanted to change?

1	2	3	4	5	6	7	8	9	10
Not Recommend									Strongly Recommend



## Appendix B

This Assessment covers:

GPA

Absences

Behavior Referrals

Student Number: \_\_\_\_\_

Zip code: \_\_\_\_\_

Cultural background: \_\_\_\_\_

This evaluation should be **submitted** at the end of the school year, by June 15<sup>th</sup>.

Please note that sections should be **filled out at the end of each semester**.

Initial **GPA** \_\_\_\_\_ cumulative.

If student attends six or more meetings in one semester, then record the **SEMESTER** GPA in each blank.

(Example: 6 classes=14 grade pts./ divided by 6=2.3 Semester GPA)

Semester 1 \_\_\_\_\_ Semester 2 \_\_\_\_\_

Initial # of **absences** in previous semester. \_\_\_\_\_

Attendance (unexcused and excused)-Total number per semester

Please note any unusual circumstances if noted in records. (chronic health issues, etc.)

Semester 1 \_\_\_\_\_ Semester 2 \_\_\_\_\_

Notes if needed: \_\_\_\_\_

Initial # of **behavioral referrals** in previous semester. \_\_\_\_\_

Behavioral Referrals-Total number per semester

Semester 1 \_\_\_\_\_ Semester 2 \_\_\_\_\_

For Freshman students, with no previous high school records, just indicate

the level with FR, in response to statements referring to "Initial" average, etc.