

# [Analysis of variance results](https://assignbuster.com/analysis-of-variance-results/)

[](https://assignbuster.com/)[Science](https://assignbuster.com/essay-subjects/science/), [Statistics](https://assignbuster.com/essay-subjects/science/statistics/)

﻿Analysis of Variance Results   
Table 4.   
Analysis of Variance for ADD-like Behavior among Participants in the Remedial, General and College Preparatory English Levels.   
  
  
SS   
df   
MS   
F   
d   
Sig.   
Between Groups   
3476. 35   
2   
1738. 17   
18. 5   
. 72   
< . 001   
Within Groups   
20012. 14   
213   
93. 95   
  
  
  
Total   
23488. 48   
215   
  
  
  
  
  
The research wanted to answer the question: “ Is there a difference in the ADD-like symptoms among participants in the remedial, general, and college preparatory English levels?” In order to answer this question, the following research hypotheses were constructed:   
H0: µremedial = µgeneral = µcollegeprep   
H1: The means are not all equal.   
When considering the results for an Analysis of Variance, certain assumptions have to be met. First, the normality of the data set must be established. However, the ANOVA provides great leeway when this assumption is violated as long as such a violation is not too serious. Second, equality of variances must be assumed. In cases where variances of the groups are unequal, adjustments are made on the critical values of F and the degrees of freedom in order to accommodate the inequality. The third assumption is that the expected values of the errors are zero and, lastly, the errors must be independent.   
Table 4 shows that the ANOVA results were statistically significant, F(2, 213) = 18. 5, p < . 001. This indicates that the null hypothesis is to be rejected in favor of the alternative hypothesis, and that it may be concluded that there are differences in ADD-like symptoms among the three groups.   
The strength of the relationship between English level and ADD-like behavior, as indexed by d was strong, with English level accounting for 72% of the variance in ADD-like behavior scores. A follow up Tukey test was performed to examine pair-wise differences because equal variances can be assumed. Findings indicate that those from the college preparatory group (M = 43. 07, SD = 7. 8) reported a significantly lower level of ADD like behavior compared with those from the general group (M = 53. 81, SD = 9. 5) and the remedial group (M = 56. 97, SD = 11. 7). There was no significant difference in the ADD-like behavior scores between the general group and the remedial group. Therefore, results from the ANOVA test found that participants enrolled in the college preparatory English level differed significantly on ADD-like behavior scores compared to both general English level and remedial English level participants, and that the difference between the groups was large, with college preparatory participants reporting lower ADD-like tendencies than the two other groups.   
  
  
  
  
  
  
Oneway   
Notes   
Output Created   
05-Nov-2011 13: 56: 58   
Comments   
  
Input   
Data   
C: UsersUserDocumentsAROct30 ADHD t testHowell\_dataset\_cleaned. sav   
  
Active Dataset   
DataSet1   
  
Filter   
Weight   
Split File   
N of Rows in Working Data File   
216   
Missing Value Handling   
Definition of Missing   
User-defined missing values are treated as missing.   
  
Cases Used   
Statistics for each analysis are based on cases with no missing data for any variable in the analysis.   
Syntax   
ONEWAY ADDSC BY ENGL   
/MISSING ANALYSIS   
/POSTHOC= TUKEY ALPHA(0. 05).   
  
Resources   
Processor Time   
00: 00: 00. 078   
  
Elapsed Time   
00: 00: 00. 214   
  
  
[DataSet1] C: UsersUserDocumentsAROct30 ADHD t testHowell\_dataset\_cleaned. sav   
  
  
  
ANOVA   
ADD-like behavior score (mean of 3)   
  
Sum of Squares   
df   
Mean Square   
F   
Sig.   
Between Groups   
3476. 346   
2   
1738. 173   
18. 500   
. 000   
Within Groups   
20012. 136   
213   
93. 954   
  
  
Total   
23488. 481   
215   
  
  
  
  
  
Post Hoc Tests   
  
  
  
Multiple Comparisons   
ADD-like behavior score (mean of 3)   
Tukey HSD   
(I) 9th Grade English Level   
(J) 9th Grade English Level   
Mean Difference (I-J)   
Std. Error   
Sig.   
dimension2   
College Prep   
dimension3   
General   
-10. 73623\*   
1. 96211   
. 000   
  
  
  
Remedial   
-13. 90578\*   
2. 46716   
. 000   
  
General   
dimension3   
College Prep   
10. 73623\*   
1. 96211   
. 000   
  
  
  
Remedial   
-3. 16955   
1. 85935   
. 206   
  
Remedial   
dimension3   
College Prep   
13. 90578\*   
2. 46716   
. 000   
  
  
  
General   
3. 16955   
1. 85935   
. 206   
\*. The mean difference is significant at the 0. 05 level.   
  
Multiple Comparisons   
ADD-like behavior score (mean of 3)   
Tukey HSD   
(I) 9th Grade English Level   
(J) 9th Grade English Level   
95% Confidence Interval   
  
  
Lower Bound   
Upper Bound   
dimension2   
College Prep   
dimension3   
General   
-15. 3672   
-6. 1052   
  
  
  
Remedial   
-19. 7288   
-8. 0828   
  
General   
dimension3   
College Prep   
6. 1052   
15. 3672   
  
  
  
Remedial   
-7. 5580   
1. 2189   
  
Remedial   
dimension3   
College Prep   
8. 0828   
19. 7288   
  
  
  
General   
-1. 2189   
7. 5580   
  
  
  
  
Homogeneous Subsets   
  
  
  
ADD-like behavior score (mean of 3)   
Tukey HSDa, b   
9th Grade English Level   
N   
Subset for alpha = 0. 05   
  
  
1   
2   
dimension1   
College Prep   
29   
43. 0690   
  
  
General   
154   
  
53. 8052   
  
Remedial   
33   
  
56. 9747   
  
Sig.   
  
1. 000   
. 293   
Means for groups in homogeneous subsets are displayed.   
a. Uses Harmonic Mean Sample Size = 42. 088.   
b. The group sizes are unequal. The harmonic mean of the group sizes is used. Type I error levels are not guaranteed.