

Sample: Statistics- SPSS

Aim of the test is to examine whether there is any association between treatment group and the primary outcome, response after 18 months with age and sex as co-variables

H₀: There is any association between treatment group and the primary outcome, response after 18 months

H_A: There is no association between treatment group and the primary outcome, response after 18 months

ANCOVA (Analysis of covariance) is used to test the main and interaction effects of categorical variables on a continuous dependent variable, controlling for the effects of selected other continuous variables, which co-vary with the dependent. The control variables are called the "covariates." Standard statistical package SPSS has been used for analysis. Running ANCOVA analysis in SPSS is quite tricky as One-Way ANCOVA is part of the General Linear Models (GLM) in SPSS. The GLM procedures in SPSS contain the ability to include 1-10 covariates into an ANOVA model. Without a covariate the GLM procedure calculates the same results as the ANOVA.

Between-Subjects Factors

	Value Label	N
Group 1	Hospital Rehabilitation	129
2	Community Rehabilitation	111

Levene's Test of Equality of Error Variances^a

Dependent Variable: 18 Month Forced Expiratory Volume in 1 second (litres)

F	df1	df2	Sig.
.124	1	238	.725

Tests the null hypothesis that the error variance of the dependent variable is equal across groups.

a. Design: Intercept + AGE + SEX + GROUP

Tests of Between-Subjects Effects

Dependent Variable: 18 Month Forced Expiratory Volume in 1 second (litres)

Source	Type III Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Corrected Model	4.556 ^a	3	1.519	8.693	.000	.100
Intercept	4.214	1	4.214	24.123	.000	.093
AGE	1.897	1	1.897	10.857	.001	.044
SEX	3.004	1	3.004	17.197	.000	.068
GROUP	.005	1	.005	.030	.862	.000
Error	41.231	236	.175			
Total	188.783	240				
Corrected Total	45.787	239				

a. R Squared = .100 (Adjusted R Squared = .088)

Estimates

Dependent Variable: 18 Month Forced Expiratory Volume in 1 second (litres)

Group	Mean	Std. Error	95% Confidence Interval	
			Lower Bound	Upper Bound
Hospital Rehabilitation	.776 ^a	.037	.704	.849
Community Rehabilitation	.767 ^a	.040	.689	.845

a. Covariates appearing in the model are evaluated at the following values: Age (years) = 68.93, Gender = 1.52.

Pairwise Comparisons

Dependent Variable: 18 Month Forced Expiratory Volume in 1 second (litres)

(I) Group	(J) Group	Mean Difference (I-J)	Std. Error	Sig. ^a	95% Confidence Interval for Difference ^a	
					Lower Bound	Upper Bound
Hospital Rehabilitation	Community Rehabilitation	.009	.054	.862	-.097	.116
Community Rehabilitation	Hospital Rehabilitation	-.009	.054	.862	-.116	.097

Based on estimated marginal means

a. Adjustment for multiple comparisons: Least Significant Difference (equivalent to no adjustments).

Univariate Tests

Dependent Variable: 18 Month Forced Expiratory Volume in 1 second (litres)

	Sum of Squares	df	Mean Square	F	Sig.	Partial Eta Squared
Contrast	.005	1	.005	.030	.862	.000
Error	41.231	236	.175			

The F tests the effect of Group. This test is based on the linearly independent pairwise comparisons among the estimated marginal means.

1st table suggests, there are two types of group- “1” represents hospital rehabilitation while “2” for community rehabilitation. It indicates that there are 129 subjects belongs to hospital rehabilitation group while 111 subjects belongs to community rehabilitation group.

Second table is the test result for Levene’s test for equality of error variances.

H0: Error variance of the dependent variable is equal across group.

HA: Error variance of the dependent variable is equal across group.

Statistical significance value (i.e., p-value) is more than 0.05, therefore there is little statistical evidence to reject the null. Hence it can be inferred that Error variance of the dependent variable is equal across group.

Third table indicates whether the dependent variable were statistically significantly different having adjusted for selected covariate.

This provides the statistical significance value (i.e., p-value) of whether there are statistically significant differences in 18-Month Forced Expiratory Volume in 1 second (litre) (i.e., the dependent variable) between the groups (i.e., the independent variable) when adjusted for age and sex (i.e., the covariate). Since, statistical significance value (i.e., p-value) is less than 0.05, therefore there are enough statistical evidence to reject the null and it can be inferred that there is a statistically significant difference between adjusted means.

Next table gives the adjusted means (i.e., the original means adjusted for the covariate). Last two tables are the output of Post-Hoc test. The statistical significance value (i.e., p-value) is more than

0.05 which means there are not enough statistical evidence to prove that group comparisons are statistically significantly different.

Hence, it can be proved that there is association between treatment group and the primary outcome, response after 18 months