SPSS Student Guide

Statistical Comparison Using t-test and Non-Parametric Tests

This guide walks you through how to perform a full statistical analysis in SPSS. You will learn how to:
- Prepare your variables
- Check normality
- Run t-tests and non-parametric alternatives
- Interpret test results for group and gender comparisons

STEP 1: Check & Label Variables (in Variable View)

1. Click the Variable View tab (bottom of the screen).
2. Make sure your variables are set up correctly:

Variable Name	Type	Measure	Label
Score_Count	Numeric	Scale	Individual score
Group	String	Nominal	Group category
Gender	String	Nominal	Gender of participant

STEP 2: Recode Group & Gender into Numeric Variables

➤ Recode Group into Group_num:

1. Go to Transform → Automatic Recode
2. Move Group into the "Variable → New Name" box
3. Enter New Name: Group_num
4. Click Add, then OK

➤ Recode Gender into Gender_num:

Repeat the steps above for Gender. New name : Gender_num

STEP 3: Descriptive Statistics (Explore Function)

1. Go to Analyze → Descriptive Statistics → Explore
2. Move Score_Count to Dependent List
3. Move Group_num and/or Gender_num to Factor List
4. Click Plots: Check Histogram and Normality plots with tests
5. Click Continue, then OK

STEP 4: Normality Test (Shapiro-Wilk)

1. In Explore output: Scroll to Tests of Normality
2. Look at Shapiro-Wilk p-value

Interpretation:
- $p > 0.05$ → Data is approximately normal
- $p \leq 0.05$ → Data is not normal

STEP 5: Independent Samples t-Test (Compare means of 2 groups)

1. Go to Analyze → Compare Means → Independent-Samples T Test
2. Test Variable: Score_Count
3. Grouping Variable: Group_num
4. Click Define Groups: e.g., 1 for Group A, 2 for Group B
5. Click OK

Repeat this for:
- Group A vs Group C (1 vs 3)
- Group B vs Group C (2 vs 3)

STEP 6: Gender Comparison Within One Group (Group A)

1. Go to Data → Select Cases
2. Choose: If condition is satisfied → click If...
3. Enter: Group_num = 1 → Continue → OK

Now only Group A is active. Then run t-test on Gender_num (1 = Male, 2 = Female).

1. Go to Analyze → Compare Means → Independent-Samples T Test
2. Test Variable: Score_Count
3. Grouping Variable: Gender_num
4. Define Groups:
    - Group 1: 1 (Male)
    - Group 2: 2 (Female)
5. Click OK

   **** To reset: Data → Select Cases → All cases → OK *****

STEP 7: Mann-Whitney U Test (Non-Parametric Alternative)

1. Go to Analyze → Nonparametric Tests → Legacy Dialogs → 2 Independent Samples
2. Test Variable: Score_Count
3. Grouping Variable: Group_num
4. Define Groups: 1 = Group A, 2 = Group B
5. Select Mann-Whitney U
6. Click OK