



Al-Mustaqbal University College
Department of Anesthesia techniques

Third Stage

Lecture 8

T- Tests in SPSS (cont.)

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2024-2025



Independent Samples T-Test - Assumptions

- Conclusions from an independent samples t-test can be trusted if the following assumptions are met:
- **Independent observations.** This often holds if each case in SPSS represents a different person or other statistical unit. This seems to hold for our data.
- **Normality:** the dependent variable must follow a **normal distribution** in the population. This is only needed for samples smaller than some 25 units. We'll see the actual samples sizes used for our t-test after running it so we won't bother about normality until then.



Independent Samples T-Test - Assumptions

- **Homogeneity**: the **standard deviation** of our dependent variable must be equal in both populations. We only need this assumption if our sample sizes are (sharply) unequal.
- **SPSS** tests if this holds when we run our t-test. If it doesn't, we can still report corrected test results.



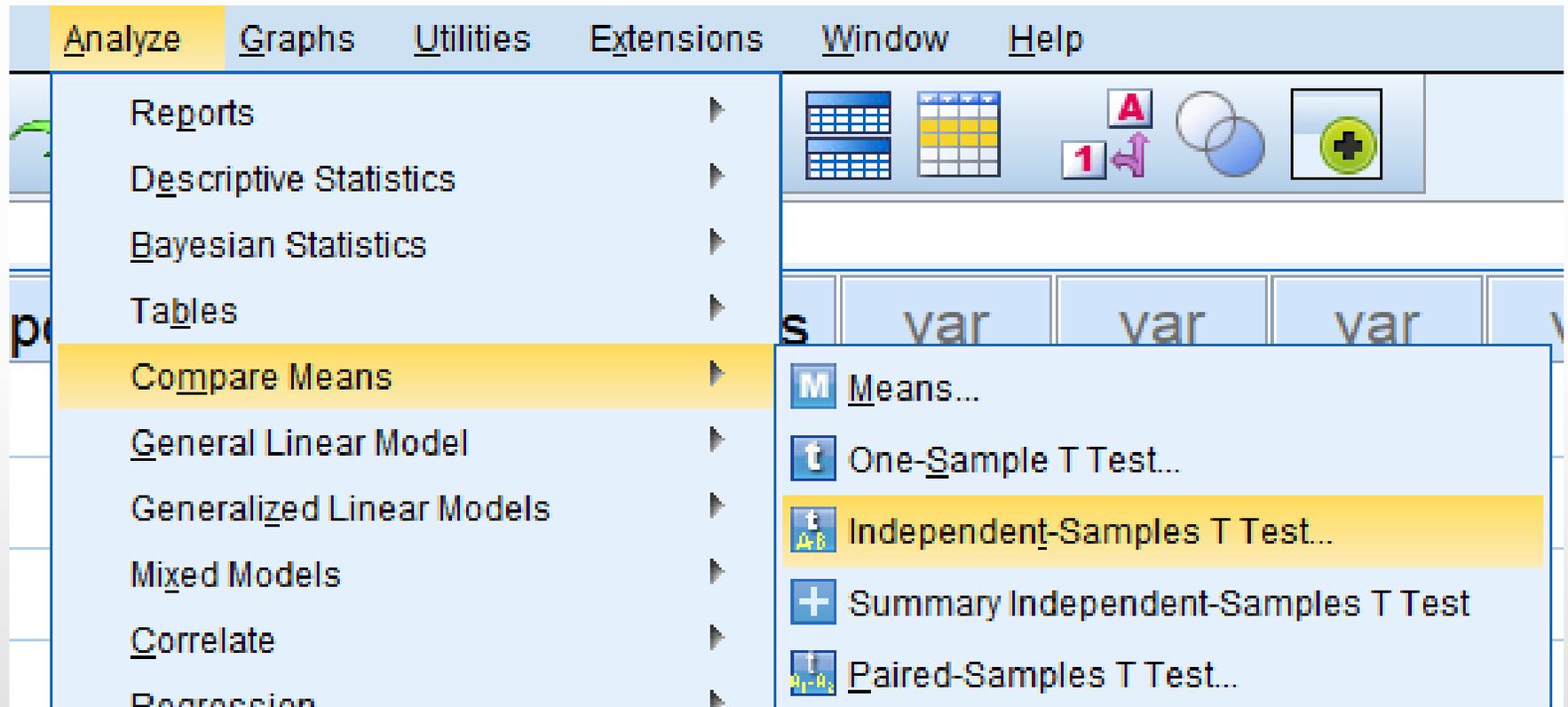
Quick Data Check

- The data at hand have been prepared and are good to go.

However, if you run a t-test on other data, you should at least inspect some **histograms** of your dependent variable(s).

- Make sure their **distributions** look plausible. If they contain any extreme values, specify them as **user missing values**.

Data Editor



The image shows the SPSS software interface with the 'Analyze' menu open. The 'Independent-Samples T Test...' option is highlighted. The background shows a 'Data Editor' window with a grid of data and several columns labeled 'var'. The 'Analyze' menu is expanded, showing options like 'Reports', 'Descriptive Statistics', 'Bayesian Statistics', 'Tables', 'Compare Means', 'General Linear Model', 'Generalized Linear Models', 'Mixed Models', 'Correlate', and 'Regression'. The 'Compare Means' sub-menu is also expanded, showing 'Means...', 'One-Sample T Test...', 'Independent-Samples T Test...', 'Summary Independent-Samples T Test', and 'Paired-Samples T Test...'. The 'Independent-Samples T Test...' option is highlighted in yellow.

Menu items:

- Analyze
- Graphs
- Utilities
- Extensions
- Window
- Help

Sub-menu items (under Compare Means):

- Means...
- One-Sample T Test...
- Independent-Samples T Test...
- Summary Independent-Samples T Test
- Paired-Samples T Test...

Independent-Samples T Test

- id
- sex
- dob
- depr
- comp
- anti

Test Variable(s):

anxi **1**

Options...

Grouping Variable:

divorced(0 1) **2**

Define Groups... **3**

6 Paste Reset Cancel Help

Define Groups

Use specified values

Group 1: 0 **4**

Group 2: 1

Cut point:

5 Continue Cancel Help

① We'll first-test `anxi` and make sure we understand the output. We'll get to the other 3 dependent variables later.

⑥ Clicking `Paste` creates the syntax below. Let's run it.

SPSS Independent Samples T-Test Syntax

```
*Independent-samples t-test syntax for anxi by divorced.
```

```
T-TEST GROUPS=divorced(0 1)
```

```
/MISSING=ANALYSIS
```

```
/VARIABLES=anxi
```

```
/CRITERIA=CI(.95).
```





Thank You