T-test Chi-Squared Test Analysis of Variance (statistics) Statistical Hypothesis Testing A/B Testing Statistics (academic discipline)

How do I choose whether I should I prefer the Chi-Squared test, t-test, or ANOVA?

2 Answers

Timothy Sly, Epidemiologist and Emeritus Prof, Ryerson University, Canada
621 Views

Christopher is correct, but let me clarify the answer. Let's assume you have TWO groups (for instance boys and girls in a grade 6 class). You want to compare their marks in a math test. The "input" variable is the groups - boys vs girls. That's important. The "outcome" variable is the marks - and that is "continuous" (every possible number between zero and 100 percent). This is PERFECT for a t-test For 'unpaired' data).

Now compare THREE groups - perhaps you have three ways to get workers back to work after a back injury: physiotherapy, chiropractic, and acupuncture. Again the 'input variable is discrete groups (3 of them), and the outcome variable could be the number of days before they are fit for work- a "continuous variable" or some measurement on a continuous scale. This is Perfect for a one-way analysis of variance (1-way ANOVA).

Now the scene changes. You have people who have chosen the three treatment methods, and you are interested in whether males and females equally choose the three methods. (Forget about how effective they are!). BOTH variables are in groups. This is

I hope this helps.

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How can I decide when to use ANOVA and when to use T-Test depending upon the data?

Christophe Cop, Master of science in Statistics
310 Views • Christophe is a Most Viewed Writer in Statistical Hypothesis Testing.

You first look at how the data got produced
You then look for which questions (hypothesis) you wish to be answered.
Then you select the best technique for it.
As such, you need to know the model assumptions of your tests and where they can and can't be used.

Chi-square can be used for testing independence of samples (or if the observed frequency is deviant from the expected)
T-test is for testing 1 or 2 samples (paired or unpaired), when sd is unknown and data is iid Normal
Anova is like t-test, but also works for more than 2 samples. Same iid Normal assumption is made.

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What exactly is a chi-squared distribution?

Is Chi square test a good test for comparing frequency counts between two groups?

What is the most intuitive explanation for the chi square test?

Why is the chi-squared distribution important?

Why does the chi squared test work?

Statistical Hypothesis Testing: What are the main applications under which the Chi-square distribution can be applied?

How can you learn statistical tests like ANOVA, chi-square or others very efficiently?

Statistics (academic discipline): Why Chi squared test is called Chi 'squared' test?

When we say chi-square test, do we mean Pearson's chi-square test?

What is the method to decide the degrees of freedom in a statistical test of significance like t-test chi-square test and f-test?

Can I apply t-test/Anova in categorical variables?

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