

What is Hypothesis

Hypothesis: A hypothesis is a proposed explanation for a phenomenon

“Hypothesis” and “Theory” are often used synonymously but in science hypothesis is a provisionally accepted

A different meaning of the term hypothesis is used in logic, to denote the antecedent of a proposition. As ‘If P, then Q’-here P is hypothesis(antecedent).

Test of Hypothesis

- . Hypothesis Testing was introduced by Ronald Fisher, Karl Pearson .
A hypothesis that is testable on the basis of observing a process that is modeled via a set of random variables is called Test of Hypothesis.
- Hypothesis Testing is an act in statistics whereby an analyst tests an assumption regarding population parameter.

Types of Hypothesis

- Simple
- Complex
- Empirical
- Null
- Alternative
- Logical
- Statistical

Simple Hypothesis

- Simple hypothesis predicts that there exist a relationship between the independent variable and dependent variable.
- Example- increasing temperature decreases air pressure. Here increasing temperature is independent variable and decreasing air pressure is dependent variable. So, there is a relationship between increasing temperature and decreasing air pressure.

Complex Hypothesis

- Complex Hypothesis predicts that there exist relationship between two or more independent and dependant variable.
- Example- increasing temperature and expansion of airmass causes decreasing air pressure and movement of air upward.
- Here increasing temperature and expansion of airmass are two independent variable and decreasing air pressure and movement of air upward are dependent variable.

Null Hypothesis

- It is also called statistical hypothesis because this type of hypothesis is used for statistical testing.
- The Null Hypothesis predicts that, there is not relationship between the independent variable and dependent variable.
- Example- average Aman production does not impact on population growth. In this example there is no relationship between average Aman production and population growth.

Therefore this example accept the
Null Hypothesis.
It is expressed by H_0

Alternative Hypothesis

- logical opposite of the null hypothesis
- That a **statistically significant** difference does exist between the population parameter and the sample statistic being compared.
- It is denoted by H_1

Statistical Significance

- While comparing between two sets of data, the method to be used will depend on the nature of data in consideration.
- There are two types of test-
 - 1. Parametric test
 - 2. Non-parametric test

Parametric Test

- A parametric test is suitable when a parameter has the following characteristics-
- 1. the population data should be normally distributed.
- 2. the observations should be independent of each other.
- 3. the comparable population should have the same variance.
- 4. the variables are available on the interval or ratio scale.

Example of Parametric Test

- The common parametric test are-
- 1. Student's 't' test
- 2. Snedecor's 'F' test

Non-parametric Test

- Such test do not require series of assumption in the population like parametric test except independence.
- The ordinal, nominal and even interval data can be tested in non-parametric test.
- These tests are –
 - 1. Chi- square test
 - 2. One sample runs test
 - 3. Mann-Whitney U test etc.

References:

<https://www.slideshare.net/slideshow/hypothesis-and-its-types/70200343>

<https://www.slideshare.net/slideshow/research-hypothesisppt/41060983>