

TYPES OF HYPOTHESES:

Theoretically there should be only one type of hypothesis, that is the research hypothesis – the basis of your investigation. However, because of the conventions in scientific enquiries and because of the wording used in the construction of a hypothesis, hypotheses can be classified into several types. Broadly, there are two categories of hypothesis:

1. research hypotheses.
2. alternate hypotheses.

The formulation of an alternate hypothesis is a convention in scientific circles. Its main function is to explicitly specify the relationship that will be considered as true in case the research hypothesis proves to be wrong. In a way, an alternate hypothesis is the opposite of the research hypothesis. Conventionally, a null hypothesis, or hypothesis of no difference, is formulated as an alternate hypothesis.

Let us take an example. Suppose you want to test the effect that different combinations of maternal and child health services (MCH) and nutritional supplements (NS) have on the infant mortality rate. To test this, a two-by-two factorial experimental design is adopted.

There are several ways of formulating a hypothesis. For example:

1. There will be no difference in the level of infant mortality among the different treatment modalities.
2. The MCH and NS treatment groups will register a greater decline in infant mortality than the only MCH treatment group, the only NS treatment group or the control group.
3. Infant mortality in the MCH treatment group will reach a level of 30/1000 over five years.
4. Decline in the infant mortality rate will be three times greater in the MCH treatment group than in the NS group only over five years.

		<i>Maternal and child health services (MCH)</i>	
		Yes	No
<i>Nutritional supplements (NS)</i>	Yes	MCH + NS	NS
	No	MCH	Control

Fig: Two-by-two factorial experiment to study the relationship between MCH, NS and infant mortality

Let us take another example. Suppose you want to study the smoking pattern in a community in relation to gender differentials. The following hypotheses could be constructed:

1. There is no significant difference in the proportion of male and female smokers in the study population.
2. A greater proportion of females than males are smokers in the study population.
3. A total of 60 per cent of females and 30 per cent of males in the study population are smokers.
4. There are twice as many female smokers as male smokers in the study population.

In both sets of examples, the way the first hypothesis has been formulated indicates that there is no difference either in the extent of the impact of different treatment modalities on the infant mortality rate or in the proportion of male and female smokers.

When you construct a hypothesis stipulating that there is no difference between two situations, groups, outcomes, or the prevalence of a condition or phenomenon, this is called a **null hypothesis** and is usually written as H₀.

The second hypothesis in each example implies that there is a difference either in the extent of the impact of different treatment modalities on infant mortality or in the proportion of male and female smokers among the population, though the extent of the difference is not specified. A hypothesis in which a researcher stipulates that there will be a difference but does not specify its magnitude is called a **hypothesis of difference**.

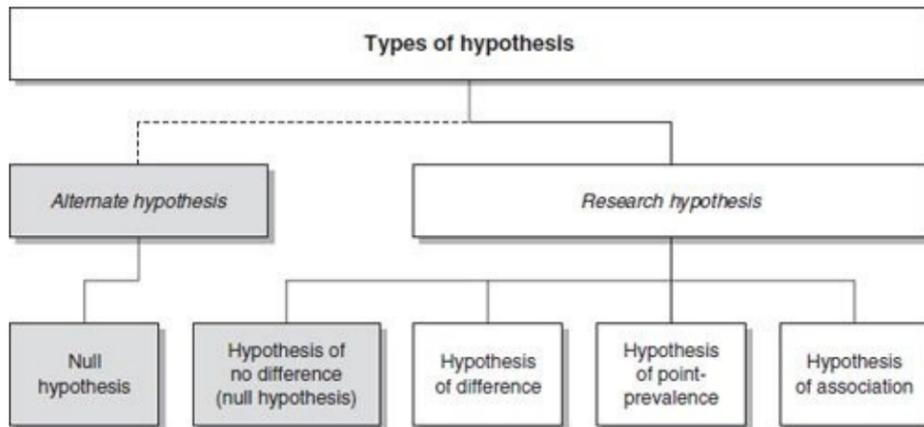


Fig: Types of Hypotheses