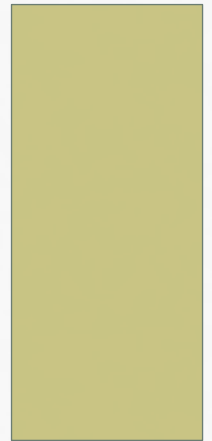# SOS POLITICAL SCIENCE AND PUBLIC ADMINISTRATION
PUB.ADMN.403
SUBJECT NAME:METHODS AND TECHNIQUES OF RESEARCH & STATISTICS
UNIT-II
TOPIC NAME:CONCEPT OF HYPOTHESIS

HYPOTHESIS

- A hypothesis (plural: hypotheses), in a scientific context, is a testable statement about the relationship between two or more variables or a proposed explanation for some observed phenomenon. In a scientific experiment or study, the hypothesis is a brief summation of the researcher's prediction of the study's findings, which may be supported or not by the outcome. Hypothesis testing is the core of the scientific method.

DEFNITIONS:

• Hypothesis is considered as an intelligent guess or prediction, that gives directional to the researcher to answer the research question.

• Hypothesis or Hypotheses are defined as the formal statement of the tentative or expected prediction or explanation of the relationship between two or more variables in a specified population

• A hypothesis is a formal tentative statement of the expected relationship between two or more variables under study.

• A hypothesis helps to translate the research problem and objective into a clear explanation or prediction of the expected results or outcomes of the study

CONTRIBUTIONS OF HYPOTHESIS

*It provides clarity to the research problem and
  research objectives.

*It describes, explains or predicts the expected
  results or outcome of the research.

* It indicates the type of research design.

*It directs the research study process. It identifies the
  population of the research study that is to be
  investigated or examined. It facilitates data
  collection, data analysis and data interpretation

FUNCTIONS

- It enables an investigator to start his research work.
- It may lead to formulations of another hypothesis.
- It leads to interpret results drawing conclusions related to original purpose.

CHARACTERISTICS

*A Hypothesis must be Capable of Verification.

*A Hypothesis must be Related to the Existing Body of Knowledge.

*A Hypothesis Needs to be Precise, Simple and Specific

PURPOSE

*Guides/gives direction to the study/investigation

* Defines Facts that are relevant and not relevant

*Suggests which form of research design is likely to be
the most appropriate Provides a framework for
organizing the conclusions
of the findings

*Limits the research to specific area
Offers explanations for the relationships between
those variables that can be empirically tested

ROLE OF HYPOTHESIS

- Helps in verification on many facts
- When it is completely verified, it amount to discovery
- It offers explanation which makes the unknown phenomena intelligible
- Guides further observation and experiment (trial and error)
- Scientists with proper hypothesis can arrive at a right conclusion
- the use of hypothesis prevents a blind search and indiscriminate gathering of masses of data which may later prove irrelevant to the problems under study.

TYPES OF HYPOTHESIS

Classified into four types Working hypothesis Descriptive hypothesis Relational hypothesis Formalized hypothesis Null hypothesis Alternate hypothesis Directional Non- directional

- **WORKING HYPOTHESIS** Framed initially 2 May not be very specific 3 Subject to modification 4 When existing data is insufficient Example: chocolates cause pimples – working hypothesis An oily skin along with intake of chocolates cause pimples- test hypothesis

- **DESCRIPTIVE HYPOTHESIS** Propositions that state the existence, size, form or distribution of some variable. • Variable can be object, person, organization, situation or event. Example: The rate of unemployment among arts students are high The education system is not oriented to the human resource needs of the country.

RELATIONAL HYPOTHESIS • Describes relationship between two variables • May be positive or negative or casual Example: Families with higher income spend more on recreation High temperatures suppresses the growth of microbial cells

FORMALISED HYPOTHESIS • Cause and effect relationships between variables • Change in one variable affects the other variable • First variable- independent variable • Second variable- dependent variable Example: "If the diffusion rate through a membrane is related to molecular size, then the smaller the molecule, the faster it will pass through the membrane. Dependent variable- diffusion rate Independent variable- molecular size

- **NULL HYPOTHESIS** • Statement that denies the working hypothesis • Predicts that there is no relationship between two variables • Cannot exist in reality • An assumption that will be maintained by the researcher unless the analysis of data provide significant evidence to disprove it • Denoted as Ho Example: "In clinical trial, there is no significant difference between two drugs"

- **ALTERNATE HYPOTHESIS** • The hypothesis to be accepted when null hypothesis is rejected • Denoted by H1 Example: "In clinical trial, there is no significant difference between two drugs"- null hypothesis In clinical trials, the new drug is better than the current drug- Alternate hypothesis

- **DIRECTIONAL HYPOTHESIS**: • Directional hypothesis are those where one can predict the direction (effect of one variable on the others 'Positive' or 'Negative')for e.g.: Girls perform better than boys ('better than' shows the direction predicted) Non-directional hypothesis:

- **NON DIRECTIONAL HYPOTHESIS** are those where one does not predict the kind of effect but can state relationship between variable 1 and variable 2.for e.g. There will be a difference in the performance of girls & boys (Not defining what kind of difference)

- **CONCLUSION**
- Without hypothesis the research is unfocussed.
- Necessary link between theory and investigation