Variable
Conceptual frame work

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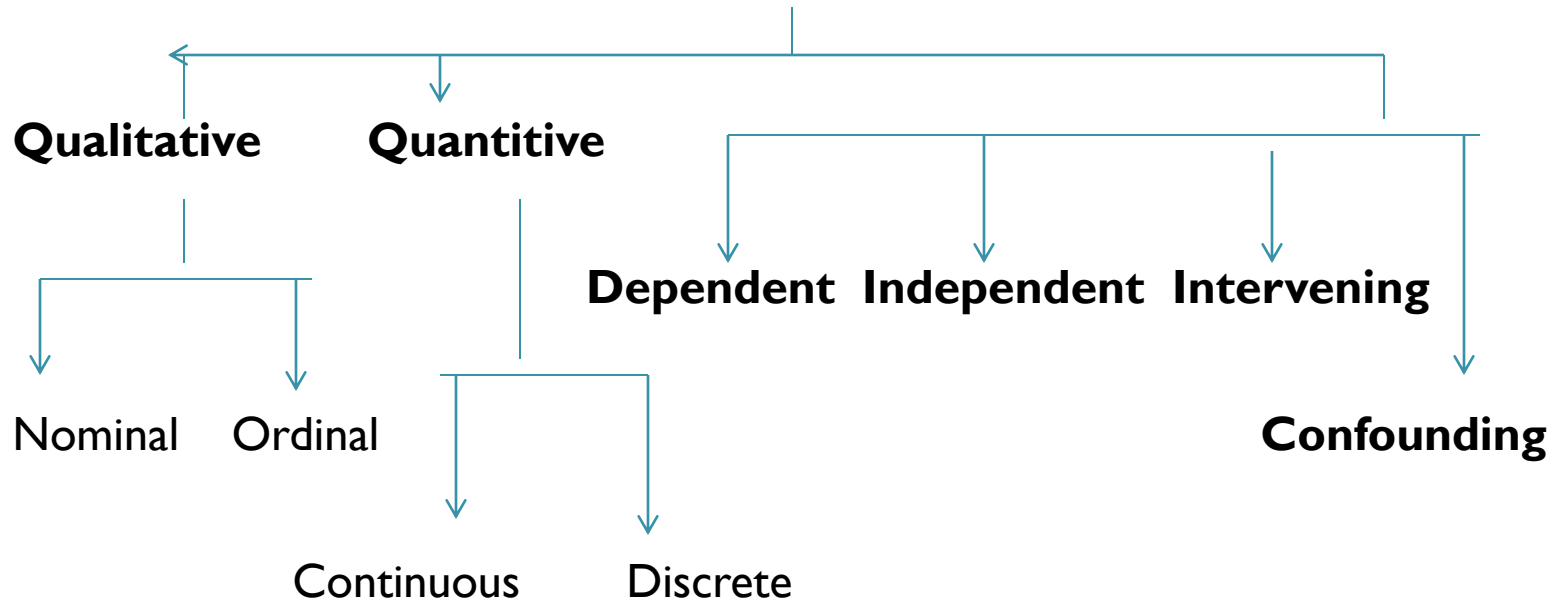Research Cell Member

Objectives

- **Define & Types of Variables.**
- **Dependent & Independent variables.**
- **Construction of Conceptual Framework.**

Variable:

- **Variables are characteristics or attributes that may vary from person to person , place to place, or from time to time.**

- **A variable may also called a data item.**

- **Eg: age, gender, education, occupation, country of birth, eye colour etc.**

Classification of Variable:

Variable

Qualitative — Quantitive — **Dependent Independent Intervening**

Nominal Ordinal

Continuous Discrete

Confounding

Classification of Variable:

- **According to characteristics /nature:**
  1.Qualitative.

  - Nominal

  -Ordinal

  2.Quantitive

  -Continuous

  -Discrete

Qualitative Variable:

Varies only in qualitative , not in degree or amount.

Eg: Eye colour, gender, occupation

Types of Qualitative Variable :

a. Nominal: Has two or more category but there is no intrinsic ordering to the category.

Eg: Hair colours

Types of Qualitative Variable (cont.):

b. Ordinal: has two or more category and a specific order beyound just naming them.

- **Eg: Socio economic status of families**

Quantitative variables:

- varies in amount and degree but not in kind .

- Eg: height, length, weight.

Types of Quantitative variable:

A. Continuous- can take on an infinite number of values (age) (height)

B. Discrete: has finite number of value (family size)

• Variables: According to role/ mutual relationship:

i. **Independent Variable: Variables that is presumed to influence other variable.**

- **It is synonymous with cause , input, exposure, risk factor, explanatory variable, predictor & stimulus**

ii. Dependent Variable: Variables affected / influenced by the independent variable.

- **It is synonymous with output, outcome, effect, response**

Example: How stress affects mental state of human beings?

Independent variable—Stress

Dependent Variable---mental state of human beings

You can directly manipulate stress levels in human subjects & measure how those stress levels change mental state

Hypertension can a causes MI .

Independent variable: Hypertension

Dependent variable: MI

Other Names for Dependent & Independent Variables:

Dependent Variables	Independent Variables
Explained	Explanatory
Predictand	Predictor
Regressand	Regressor
Outcome	Convariate
Controlled	Control

iii. Intervening/ Mediating Variable:

- Third set of variable through which independent variable affects the dependent variable.
- It is a variable whose existance is inferred but it cannot be measured.

Pregnancy leads to anemia

- **Independent variable: pregnancy**
- **Dependent variable: anemia**
- **Intervening: duration of pregnancy , pregnancy order, age of women, food eaten during pregnancy, hemoglobin level.**
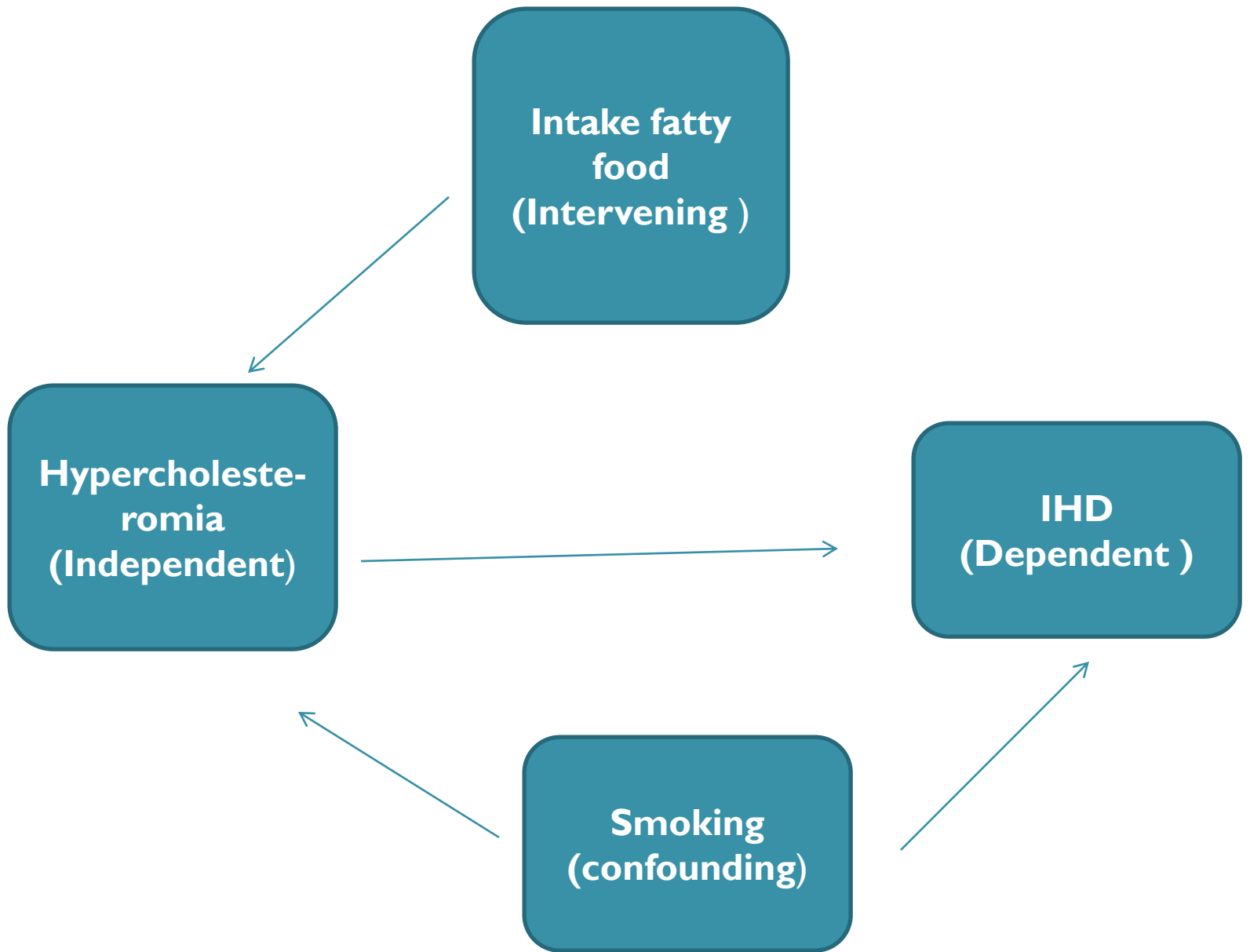
iv. Confounding variable: Variable other than independent variable that may affect the dependent variable.

- **A variable that is associated with the problem and with a possible cause of problem is called confounding variable.**

Obesity leads to Coronary heart disease.

- **Dependent: Coronary heart disease**
- **Independent: Obesity**
- **Confounding: Hypertension**

Operationalize definition of Variable:

- **Statement of the variable in workable and measurable term in actual research situation.**

- **The way by which researcher clarifies and defines the variables under investigations.**

Variable	**Operational defination**
Under weight -----------	BMI<18
Over weight --------------	BMI 25-29.9
Obese ------------------	BMI> 30
Anemic -----------------	Hb<10gm/dl
Hypertension ------------	DBP>90mHg

Conceptual Framework

Conceptual frame work:

- **It is the frame work of relation between dependent & independent variable which gives a total picture of a research at a glance.**
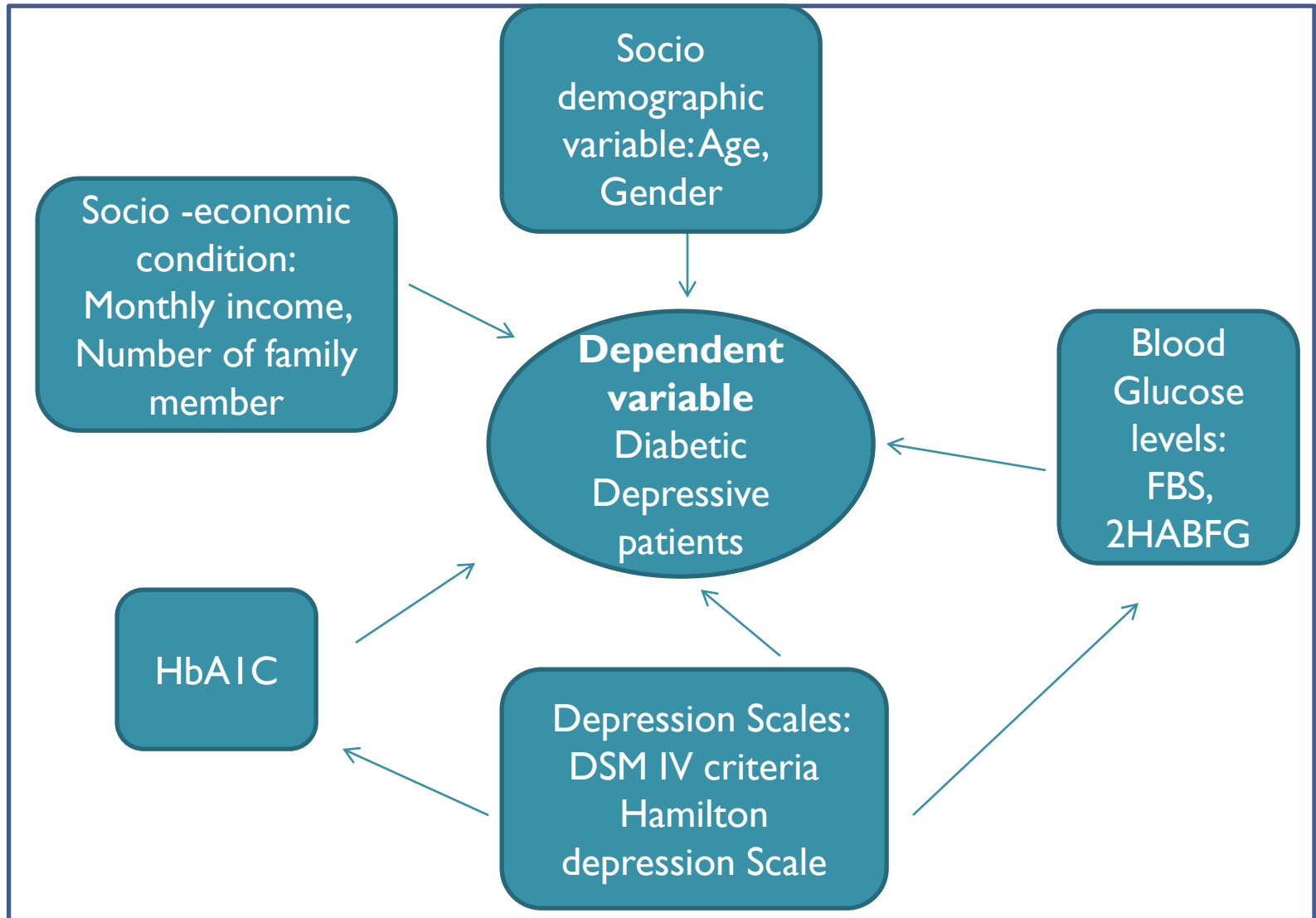
Purpose:

- **Identify relevant variables.**

- **Have an idea on analysis.**

How does it look:

- **It can take the form of equation or a diagram or may simply description of how the variables are related.**

Title: Efficacy of Escitalopram (SSRI) for better glycemic control in the Diabetic Depressive patients

Summary:

- **Variables are basic units of the information studied and interpreted in research studies.**

Summary (cont.):

- **Independent variables influence the value of other variables, dependent variables are influenced in value by other variables.**

Summary (cont.):

- **A conceptual framework is used in a research paper to explain the key concepts or variables and the relationships between them .**