

Fallacies in Research of Pakistan

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Research

An investigation undertaken in order to discover new facts or to get additional information.

Oxford Dictionary

Research

Research is a systematic collection, analysis and interpretation of data to answer a specific question or solve a problem.



Essentials of Research

 Commitment 	20 %
 Concentration 	30 %
o Common Sense	50 %

Requirements

- Pen
- Paper



O Monday

- O 10th August, 610 AD
- O 21st Ramadan

OSura Alaq . Sura 96 : Makki

اپنے رب کے نام سے پڑھ ،جس نے بپ اکیا۔ انسان کو ایک لو تفری سے پیدا کیا ۔ بره اور تبرارب سسب سے بر صرکر بزرگی والا س جس في فلم ك ذرابيد سي علم سكهايا -انسان كوده سكهما باجو وه نبيس مباننا تقا

إقرابا سُعري بنك الآذي خلق خَلَقَ الإِنْسَانَ مِنْ عَلَقَ آ إقراديم مك الأكرم ٢ الَّذِي عَلَّمَ بِالْقَلَمِ فَ عَلَّمُ الإِنْسَانَ مَالَمُ يَعْلَمُ هُ

Basic Requirements of Research

- Systematic Collection of Data
- Systematic Analysis of Data
- Systematic Interpretation of Data

Example of Un-systematic Collection of Data

To see the association of Type II diabetes mellitus (Type II DM) in patients suffering from chronic HBV or HCV related liver disease

Unsystematic Data Collection

400 patients suffering from chronic liver disease were selected for the analysis. They were 263 males and 137 females aged 15 and 80 years (mean 42 ± 13 years). Of the 400 cases, 302 (76%) had HCV and 98 (24%) HBV related liver disease.

410 blood donors were taken as healthy controls. 96.5% were males aged 18-55 years (Mean 27 ± 7 years). 18 (4.5%) donors were HCV positive and 17 (4.1%) HBV positive. None of the HBV positive donor and one (5.6%) HCV donor had diabetes.

The prevalence of diabetes in chronic liver disease (24.5%) was significantly higher(p < 0.05) than in controls (5.6%).

Explanation

The blood banks usually do not bleed people with diabetics, high blood pressure or those with known familial diseases.

Therefore, when the authors took controls from blood bank, the diabetics had already been screened out and their results showed a lower percentage of diabetics

Example of Un-systematic Analysis

A total of 220 patients were included in the study; 29.5% (65) were females and 70.5% (155) were males. Overall mean age was 32.39 ± 0.83 years..... Out of 220 cancer patients, 143 (65%) had some type of mental disorder according to the DSM-IV criteria.

Mental disorders were common in males (62%) than the females (38%); difference was statistically significant (χ 2 = 34.37, df=3, p< 0.001, Table II)

Table II: Gender of patients with mental disorders. Values are number (%)

	Gender			
Mental Disorders	Female (%)	Male (%)	Total (%)	
Adjustment Disorders	14(9.8)	35(24.5)	49(34.3)	
Anxiety Disorders	06(4.2)	35(24.5)	41(28.7)	
Mood Disorders	34(23.8)	15(10.5)	49(34.3)	
Others	Nil	04(2.8)	04(2.8)	
Total	54(37.8)	89(62.2)	143(100)	



89/155= 57.4%

54/65= 83.1%

Explanation

We may say that among, those who had mental disorder (143), there was a preponderance of males (89 : 62.2%) as compared to females (54 : 37.8%) but we cannot say that the disease was more common among males because out of 155 males, 89 (57.4%) were having mental disorder as compared to 54 females out of 65 females (83.1%) included in the study.

Cry of every Finance Minister

- Total Population = 140,000,000
- % of Tax Payers = 1 %
- # of Tax Payers = 1,400,000

Census 1998

Distribution of Population according to Age

Age Years	Population	Percent	Male %	Female %
All Ages	130,600,000	100.0	51.94	48.06
0-4	18,611,101	14.6	14.3	14.9
5-9	19,994,265	15.6	15.7	15.6
10-14	16,487,551	12.9	13.1	12.7
15-19	13,193,775	10.4	10.2	10.5
		53.5	53.3	53.7
20-59	-	-	-	-
60 -64	2,618,383	2.0	2.1	2.0
65 – 69	1,509,437	1.2	1.3	1.1
70 – 74	1,353,9474	1.0	1.1	1.0
≥ 75	1,504,741	1.1	1.2	1.1
		5.3	5.7	5.2

Factual Position

Population eligible to pay tax = 100 - 60 = 40%

 $40 \times 14000000/100 = 56,000,000$

% of Tax Payers = 1400000 / 56000000 = 2.5 %

Un systematic Interpretation







Types of Research

• Basic Research

To generate new knowledge and technologies to deal with major unsolved health problems.

• Applied Research

To identify priority problems and to evaluate polices and programmes that will deliver the greatest health benefits.



Methods of Research

Description

- Patient's Profile
- Lab Parameters
- Case Reports
- Health System Research



<u>Comparison</u>

- Two Drugs
- > Two Methods
- > Two Procedures
- > Two Processes



Scientific Facts

- ✓ Facts supported by substantial evidence.
- Never Final
- ✓ Never Absolute
- × Truth is not absolute
- Proof is relative to
 - Time
 - Method
 - Amount of Data
 - Interpretation



Lehman's laws!

A program that is used in real

environment, must change or

become progressively less useful in

that environment.

Software Evolution

- Software change is inevitable.
- New requirements emerge when the software is used.
- The business environment changes.
- Errors must be repaired.
- New computers and equipment is added to the system.
- The performance or reliability of the system may have to be improved.

Characteristics of Research

- Research demands a clear understanding of the problem.
- Research requires a plan. Do not look for something in the hope that you will come across a solution.
- Research builds upon existing data using both positive and negative findings.
- Research collects new information

original research question.



Two Important Definitions

Prevalence

Number of cases present in a population at a particular point of time.

Incidence

Number of NEW cases occurring in a defined population during a defined period of time.

Prevalence & Incidence Prevalence

No. of cases of a disease in a population

No. of diseased + healthy persons in that population

(at a particular point or period of time)

Incidence

No. of new cases of a disease in a population

No. of individual at risk persons in that population (per unit time)

Denominators used for calculating Prevalence and Incidence

Prevalence

Total Population examined, which comprise of both health as well as diseased individuals.

{ The population should be geographically defined as fairly stable.}

Incidence

Population at risk

{ The population should be geographically defined and fairly stable.}