Chapter 2

Psychological Methods

Conducting Research

- Forming a research question
- Forming a hypothesis
- Testing the hypothesis
- Analyzing the results
- Drawing conclusions
- Replication
- New Questions

- Examples:

(a) Testing the effects of
medication on the
ion spans of children with

(b) Examining the
of eyewitness
in young children


SCHOOLS' BACKING OF BEHAVIOR-ALTERING DRUGS CRITICIZED
DOESN'T HAVE THE SAME RING AS THE OLD 'IN GOD WE TRUST,' DOES IT?
E e F f G g
p Q q R r S s T t U u
PARENT-TEACHERS NIGHT
12 x2 24
6 x2 12
IN RITALIN WE TRUST
Homewo due Wedr
41
5 207 20
7 5/2
13 x4 52
by Wayne Stayskal
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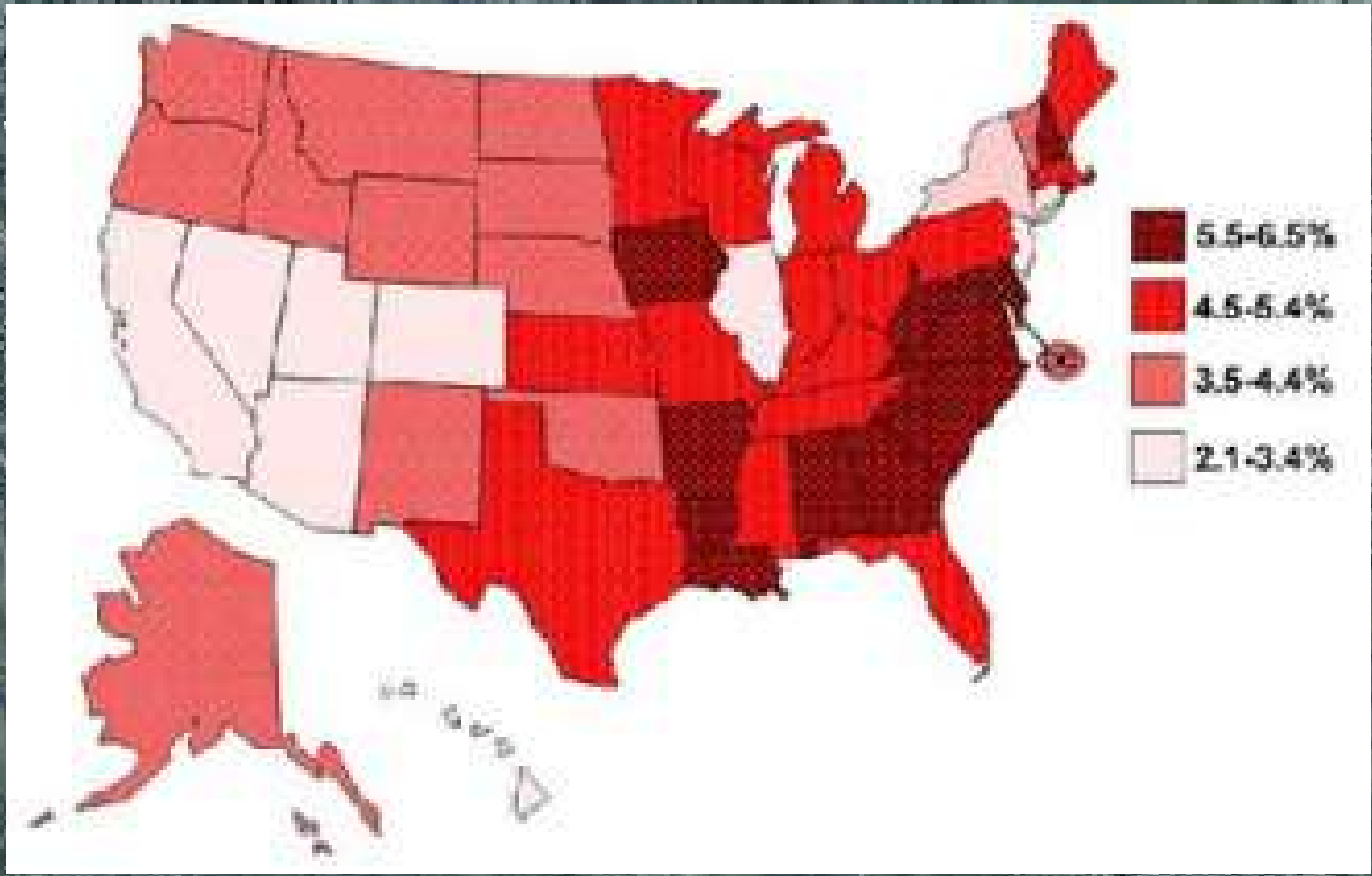
The Psychological Method at work:

- The “Mozart effect” is an increase in spatial reasoning scores after listening to a Mozart piano sonata.

- Rats learned to complete a T-maze more quickly if they had been exposed in utero and reared hearing a Mozart piano sonata.


5.5-6.5%
4.5-5.4%
3.5-4.4%
2.1-3.4%

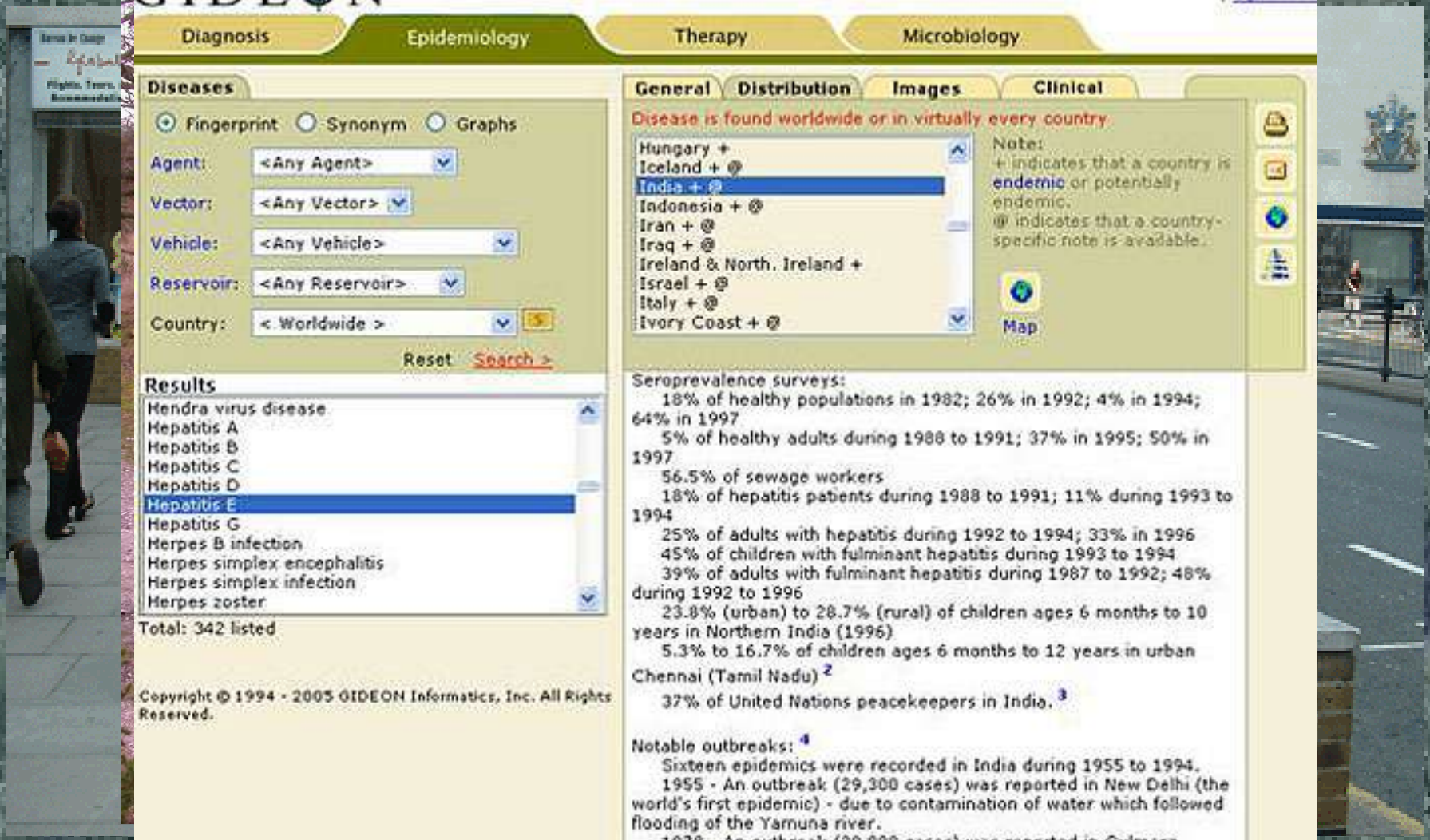
Surveys, Samples, and Populations

- Survey Method
- Populations and Samples
- Selecting Samples
- Generalizing Results
- Volunteer Bias

Surveys:

- People are asked to respond to a series of questions about a particular subject
- Written questionnaires or interviewing orally
- Problems with Surveys:
  - Honesty
  - Confidentiality
  - Please the interviewer
  - Ex. 1960's survey of tooth brushing

Surveys


GIDEON
Welcome back Steve! | My Accou
Diagnosis
Epidemiology
Therapy
Microbiology
Diseases
Fingerprint
Synonym
Graphs
Agent:
<Any Agent>
Vector:
<Any Vector>
Vehicle:
<Any Vehicle>
Reservoir:
<Any Reservoir>
Country:
< Worldwide >
Reset
Search >
Results
Hendra virus disease
Hepatitis A
Hepatitis B
Hepatitis C
Hepatitis D
Hepatitis E
Hepatitis G
Herpes B infection
Herpes simplex encephalitis
Herpes simplex infection
Herpes zoster
Total: 342 listed
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General
Distribution
Images
Clinical
Disease is found worldwide or in virtually every country
Hungary +
Iceland + @
India + @
Indonesia + @
Iran + @
Iraq + @
Ireland & North. Ireland +
Israel + @
Italy + @
Ivory Coast + @
Note:
+ indicates that a country is endemic or potentially endemic.
@ indicates that a country-specific note is available.
Map
Seroprevalence surveys:
18% of healthy populations in 1982; 26% in 1992; 4% in 1994; 64% in 1997
5% of healthy adults during 1988 to 1991; 37% in 1995; 50% in 1997
56.5% of sewage workers
18% of hepatitis patients during 1988 to 1991; 11% during 1993 to 1994
25% of adults with hepatitis during 1992 to 1994; 33% in 1996
45% of children with fulminant hepatitis during 1993 to 1994
39% of adults with fulminant hepatitis during 1987 to 1992; 48% during 1992 to 1996
23.8% (urban) to 28.7% (rural) of children ages 6 months to 10 years in Northern India (1996)
5.3% to 16.7% of children ages 6 months to 12 years in urban Chennai (Tamil Nadu) 2
37% of United Nations peacekeepers in India. 3
Notable outbreaks: 4
Sixteen epidemics were recorded in India during 1955 to 1994.
1955 - An outbreak (29,300 cases) was reported in New Delhi (the world's first epidemic) - due to contamination of water which followed flooding of the Yamuna river.
1978 - An outbreak (20,000 cases) was reported in Gulmarg (Kashmir). 5
1979 - An outbreak (6,000 cases) was reported in Sopore

Populations and Samples:

- What groups of people they wish to examine and how they are selected.
  - Target Population: the whole group you want to study or describe
  - Sample Population: part of the target population

Target Population for "Text messaging Usage"?

Now a sample population from that Target Population?

- Girls that text message
- Hispanics that text message
- Ages from 18-20 only, that text message

Selecting Samples

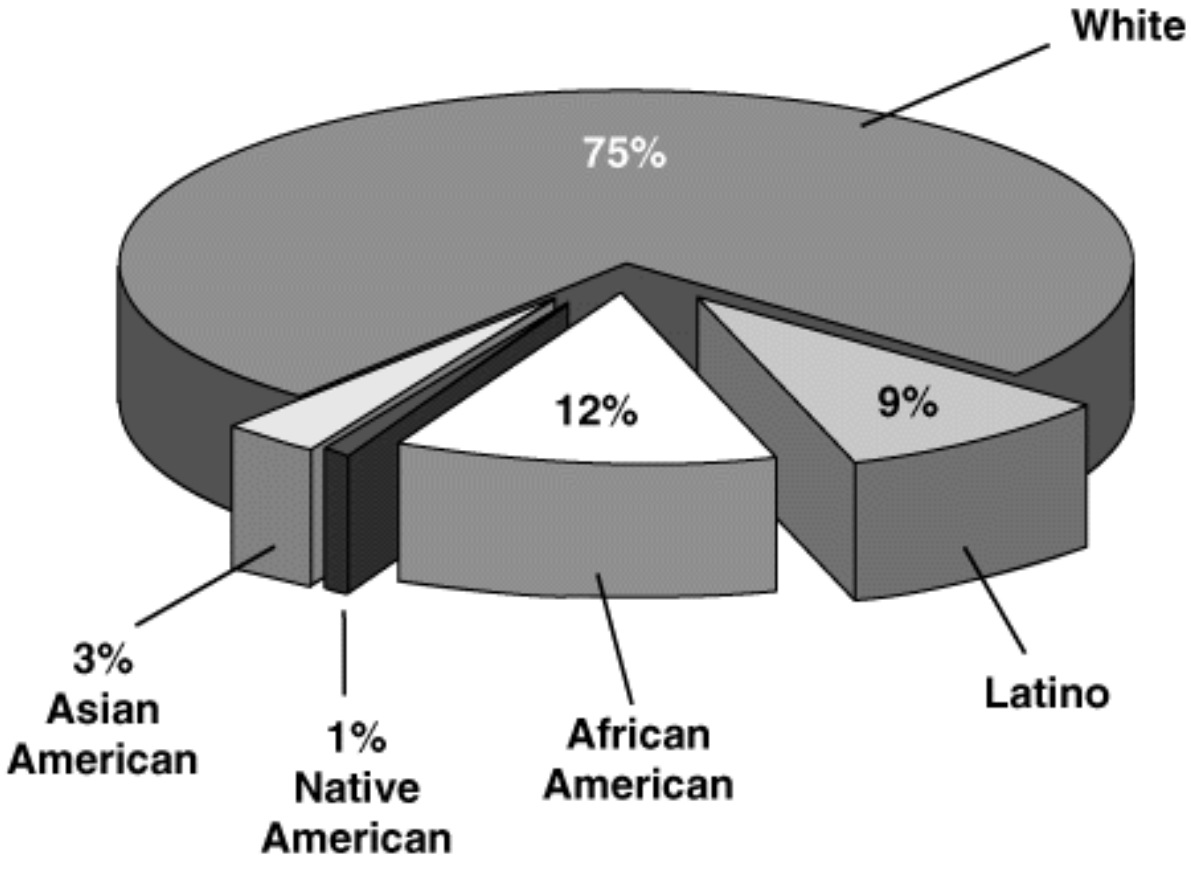
- Select samples that scientifically ensure they represent the population
  - Random- selected by chance
  - Stratified- subgroups in the population are represented proportionally

Random Sample

Stratified Sample

FIGURE 2

Racial and Ethnic Populations in the United States: 1990



Generalizing Results

- Not using the words “all” because of the results
- Researchers are careful about generalizing their finding to group other than those form which samples were drawn

Volunteer Bias

- Volunteers differ, sometimes, form those who do not volunteer.
- Want to get those that do not want to take the survey, to take it.
- Avoid surveying many enthusiastic volunteers

Methods of Observation

- The Testing Method
- The Case-Study Method
- Longitudinal and Cross sectional Methods
- The Naturalistic-Observation Method
- The Laboratory Observation
- Methods of Analyzing Observations

Testing Method

- IQ Test- tests learning ability
- Aptitude Test- specific abilities
  - Musical
  - Mechanical
  - Vocational
- Personality Tests- character traits and temperament
  - Outgoing
  - Aggressive
  - Psychological Problems
  - Anxiety
  - Depression

Testing Method

Case Study Method

- In depth investigation of an indivudal or a small group (Ex. Genie); faulty in that people have problems with past experiences
- Freud used this for his psychoanalytic theory

Case Study

Longitudinal

Selected group of participants and then observe them over a period of time (years). Observe how they change over time. This is very time consuming, expensive, and risky


Ellen P.

Cross sectional

- Selected sample that includes people of different ages to get the same result on a “cross section” of the population.
- May not be as accurate
- Much faster and cheaper

Naturalistic-Observation

- Also known as a "Field Study"
- Observe people or animals in their natural habitats.
- Cannot interfere with the organism they are observing

Naturalistic Observation

- Dian Fossey studied Mountain Gorillas in Rwanda and Zaire.
- She spent years watching and studying these Gorillas
- She was murdered in 1985

Naturalistic Observation

- Jane Goodall studied chimpanzees in Tanzania
- She has studied them for 40 years

Naturalistic Observation

- Meerkat Manor is an example of naturalistic observation

Naturalistic Observation

Naturalistic Observation

- Watching students eat lunch could be considered Naturalistic Observation
- Maybe you can watch teachers eat…

Laboratory Observation

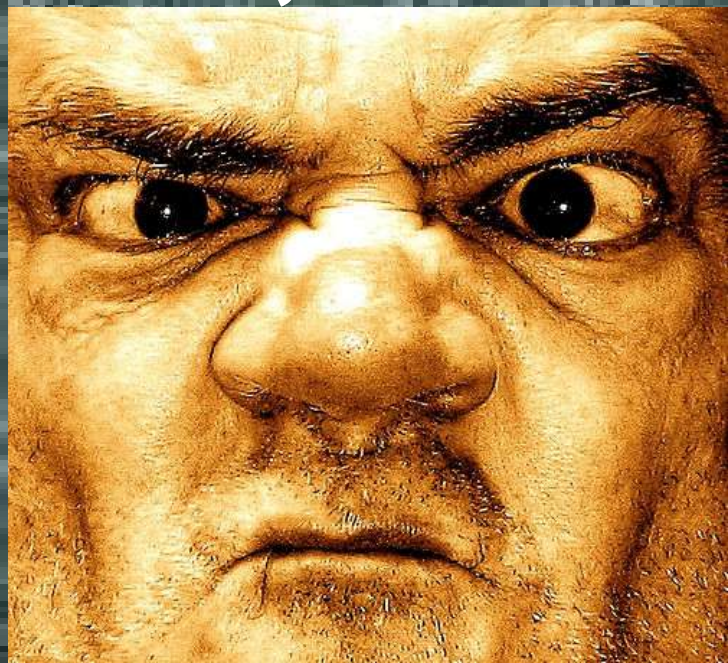
- Observe in a laboratory rather than in the field
- Laboratory is any place that provides the opportunity for observation or experimentation

Methods of Analyzing Observations

- **Correlations**- a measure of how closely one thing is related to another.
  - Positive Correlation- one variable increases, the other also increases, or as one decreases so does the other. Both variables move in the same
  - Negative Correlation- one two variables tend to move in the opposite direction

Positive Correlations

- Achievement increased, salary increases
- Temperature increases, anger increases



Negative Correlation

- The number of pages printed and the amount of ink left in your printer are negatively correlated. The more pages printed, the less ink you have left.

Limits of Correlation

- ***Does not reveal the cause and effect***

The Experimental Method

- Independent and Dependent Variables
- Experimental and Control Groups
- Placebo Effect
- Single Blind Studies
- Double Blind Studies

Independent Variable

- The factor that researchers manipulate

Dependent Variable

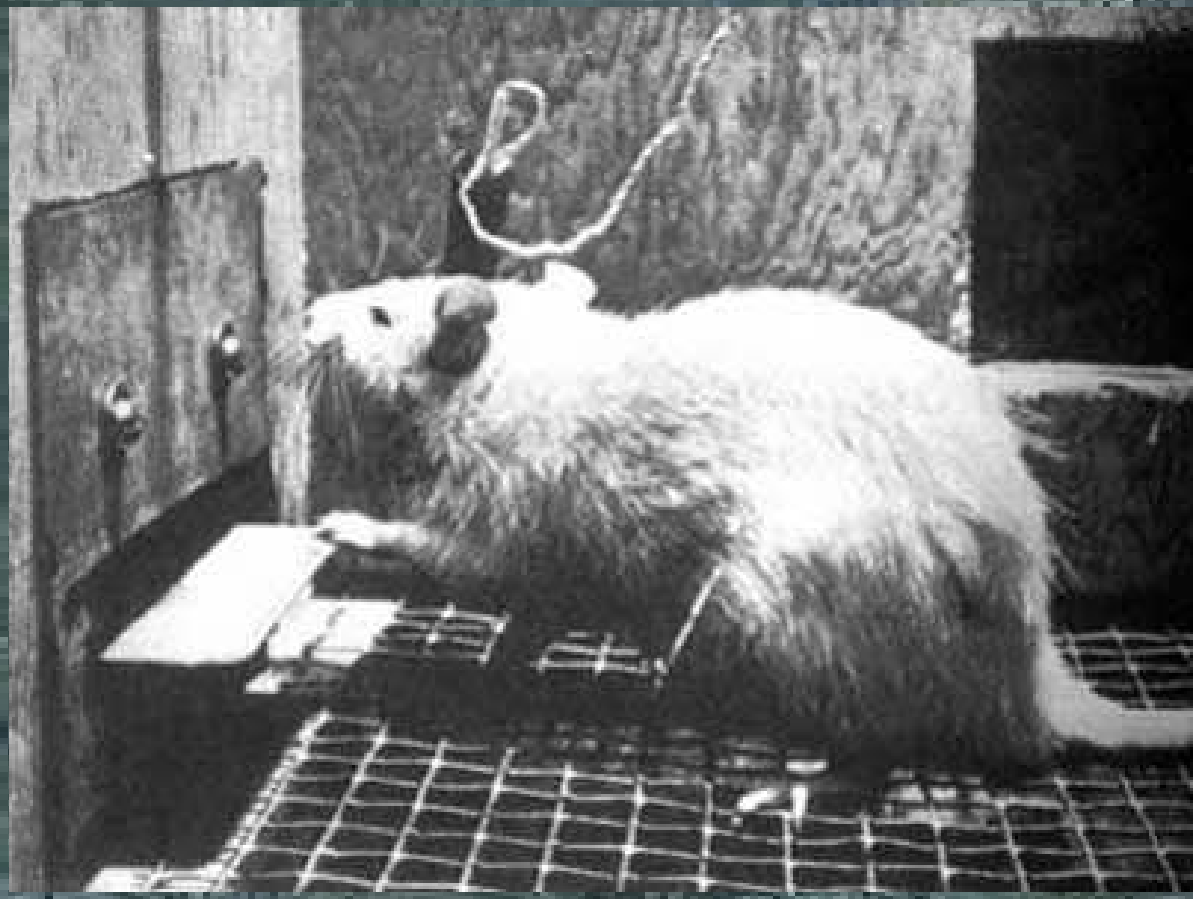
- The factor that is being measured and that may change in response to the manipulating the Independent Variable

Experiment

- Warm temperature causes aggression in humans
- Temperature is the independent variable (being manipulated)
- Aggression is the dependent variable, because it reacts to the manipulation of the independent variable.

Experimental Groups

- The group that received the treatment



Control Group

- The group that does not receive the treatment

Controlled Experiment

- An experiment conducted with both a control group and an experimental group.

Placebo Effect

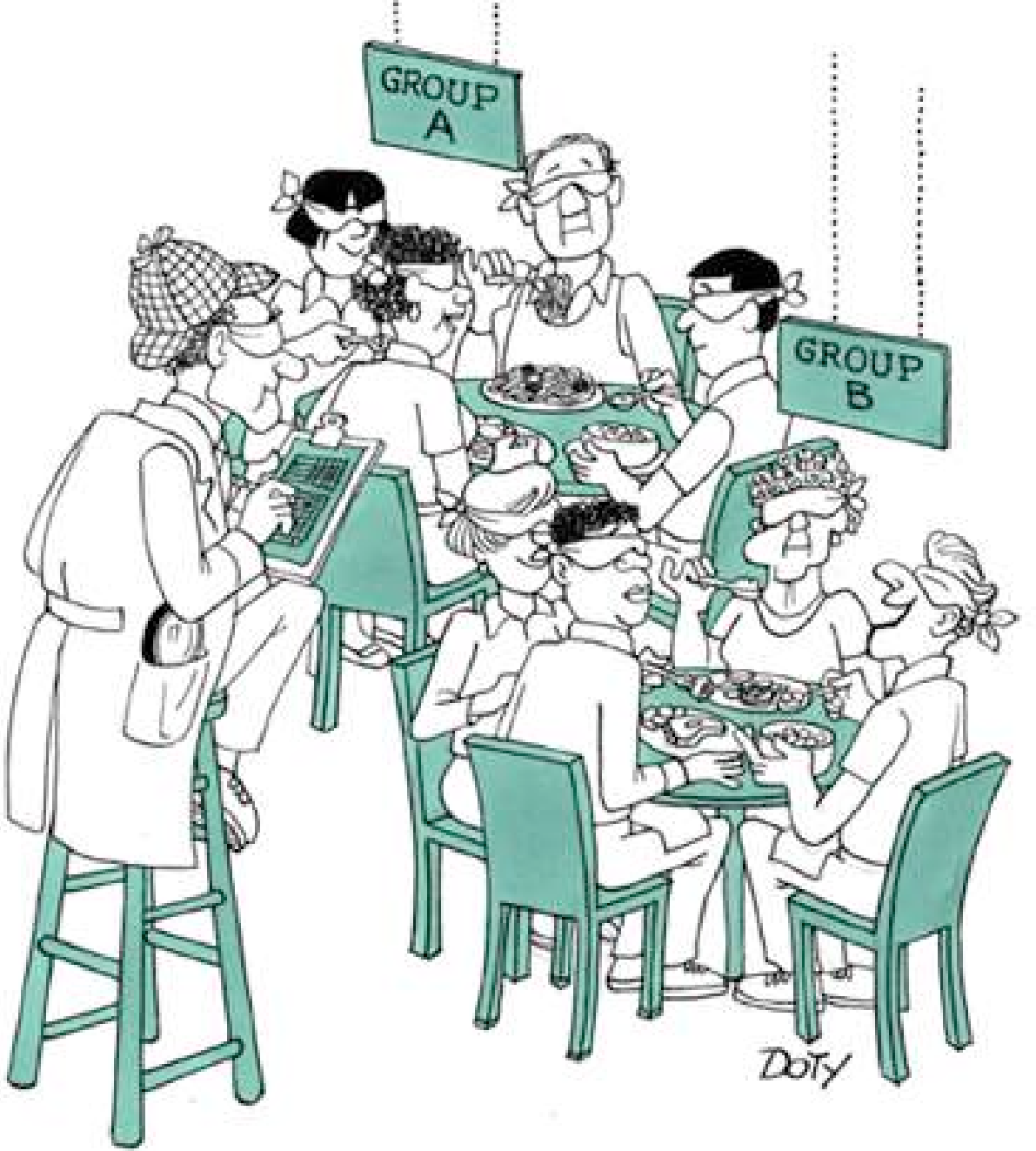
- The person's belief in the treatment
- Expectations. Hoping to feel better.
- Ex. Sugar Tablets
- Placebo-substance or treatment that has no effect apart from a person's belief in it.

Single Blind Studies

- Participants do not know whether they received the treatment or not
- Do not know if they are in the experimental group or the control group

Double Blind Studies

- Both participants and researchers are not aware of who received the placebo or the real treatment.
- Otherwise, records are kept from both so that the outcome will not be skewed.
- Information is taken by data analysis that is not involved with the experiment



"Anyone for a game of Blind Man's Bluff after dinner?"

Ethical Issues

- Research with people
- Research with animals
- Ethics in using data

Research with People

- Confidentiality- records are private
- Informed consent- people agree to participate in research study only after they have been given a general overview of the experiment
- Deception- only in specified conditions (pg 46)

Research with animals

- Psychologists only use animals when there is no alternative.
- Some believe that the benefits outweigh the harm

Ethics in Using Data

- Objectivity in producing and presenting data
- "Be willing to disregard hypothesis if it is incorrect after research"

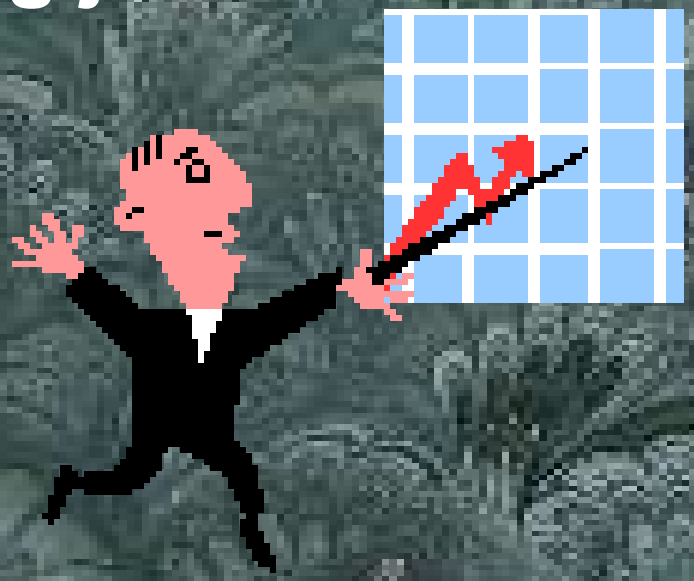
Statistics

- Classify the types and uses of statistics in psychological research; include descriptive statistics and inferential statistics.

Descriptive Statistics

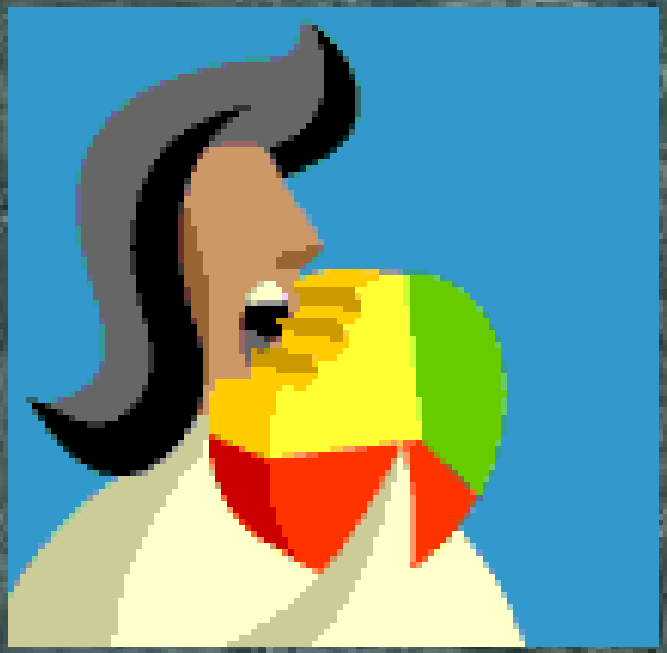
Descriptive statistics are used to describe the basic features of the data in a study. They provide simple summaries about the sample and the measures.

In simple terms, descriptive statistics can be thought of as being just a straightforward presentation of facts



Inferential statistics

- You are trying to reach conclusions that extend beyond the immediate data alone .



Quantitative Data
Measures of Central Tendency

- **Mean**- Average
- **Median**- Middle
- **Mode**- Most Frequently occurring

Example:

Find the measures of central tendency for the data set 3, 7, 9, 4, 5, 4, 6, 7, and 9.

A. Mean = 6, median = 6 and modes are 4, 7 and 9
B. Mean = 6, median = 6 and mode is 4
C. Mean = 6, median = 6 and modes are 4 and 9
D. Mean = 6, median = 9 and modes are 4, 7 and 9