



لجان الإحصاءات

# STATISTICS



MORPHINE ACADEMY

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ACADEMY

# **Pharmaceutical Statistics**

## Lecture 1

**Introduction to statistics**

**Basic concepts of statistics**

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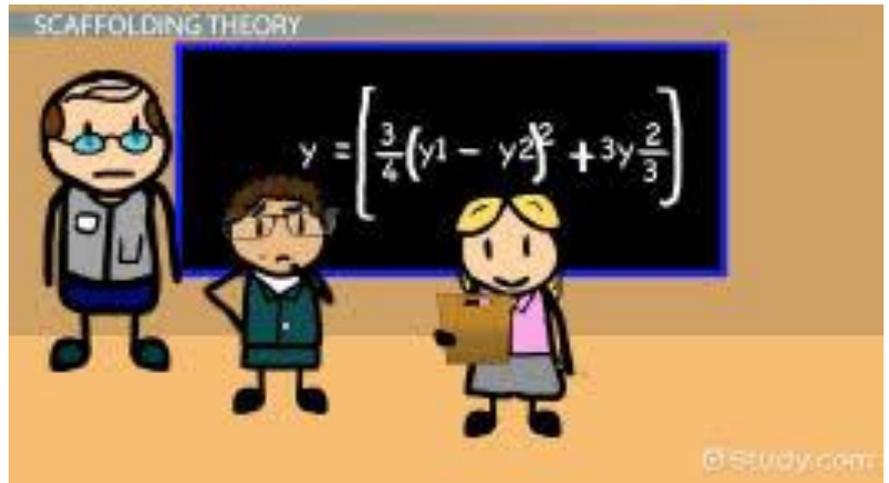




# Vocabulary of Statistics

تعليم اطفالهم منيح  
اح يخلوا اسرتنا

- Population:
- Sample
- Data
- Variables
- Parameter
- Dependency



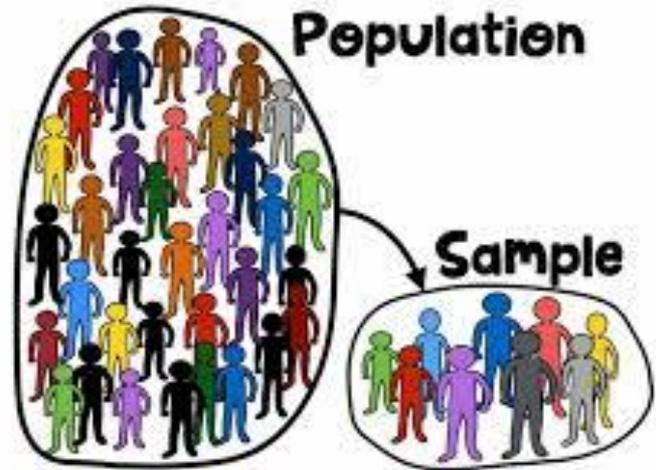




# Why we study a sample rather than a population? →

ليه بحتاج sample؟ ليه  
ما اروح على كل الـ population؟

- 1 • Less cost
- 2 • Preservation from loss
- 3 • Save time
- 4 • More accuracy
- 5 • Population is so huge















# Variables

- **Qualitative variables** *ذكرياتي / نمره ام / لون عيون*
  - Variables that can be placed into distinct categories (non-numerical), according to some characteristic or attributes.
  - Not measurable, categorical characteristics
  - Examples: Sex (male or female), Blood groups (A, B, O, AB)...etc.
- **Quantitative variables** *قياس للحلول / الوزن*
  - Variables that are numerical in nature and can be ordered or ranked, which generated usually from counting or measuring something.
  - Measurable.
  - For examples the variable age is numerical and the people can be ranked in order according to their age.





# Computer and Calculators

- In the past, statistical calculations were done with pencil and paper, but now computers and calculators do all numerical calculations.
- The most commonly used statistical packages are:
  - GraphPad prism
  - SPSS
  - STATA
  - SAS
  - MINITAB
- As students, you should know that even the computer and calculators can do perfectly all the numerical calculations in effectively time-manner. But you are still responsible for understanding and interpreting each statistical concept.