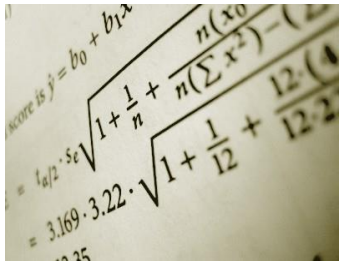
Chapter 12
Data Analysis
Quantitative Study

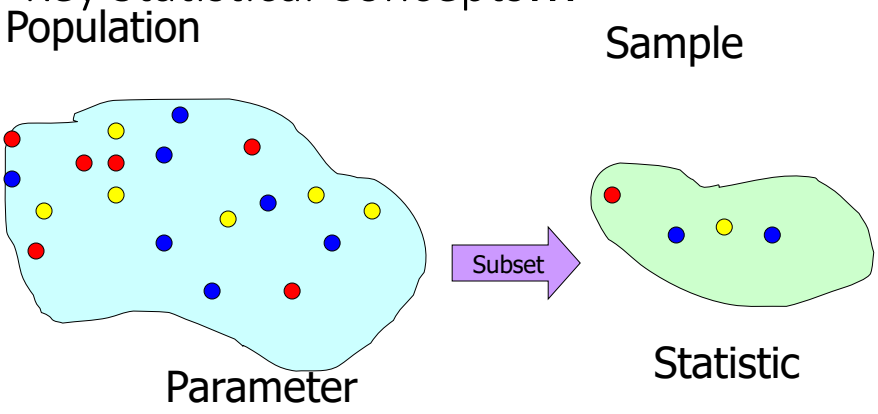
2023

Statistics

- Statistical analysis: the organization and analysis of quantitative data using statistical procedure.
  - Descriptive statistics.
  - Inferential statistics



Key Statistical Concepts…



- Populations have Parameters,
- Samples have Statistics.

Key Statistical Concepts…

- Statistical symbols

	Population symbol	sample symbol
• Mean	μ	$\bar{X}$
• Standard deviation	σ	s, SD
• Variance	σ^2	s^2, SD^2

Statistics

- **Descriptive statistics**
- Statistics that organize and summarize numerical data gathered from population and sample.

- **Inferential statistics.**
- Use sample data to make an 'inference" about the population

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Descriptive statistics
1. Frequency distribution

- Frequency distribution: systematic arrangement of value from lowest to highest.
- Counting the occurrence of scores or values represented in the data

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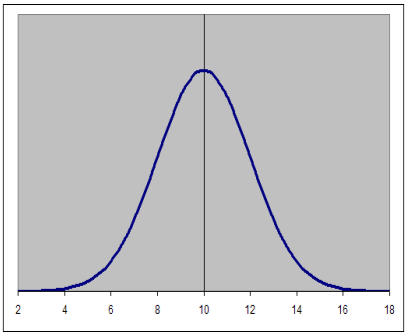
Normal distribution

- Normal distribution is the symmetrical distribution that has one central peak or set of values in the middle of the distribution



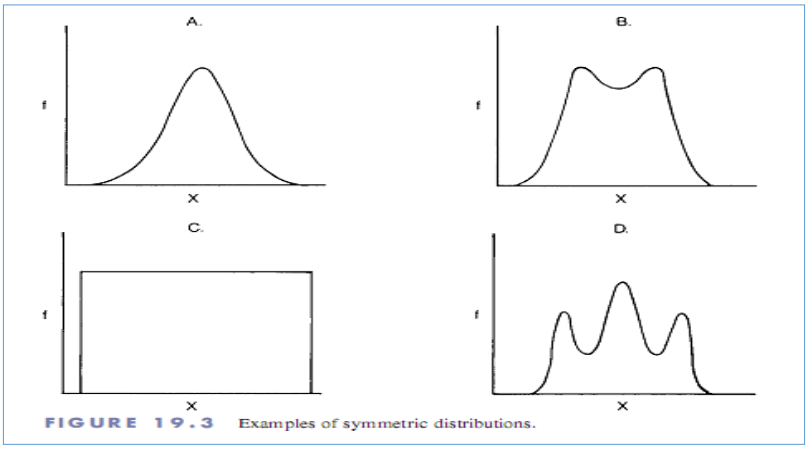
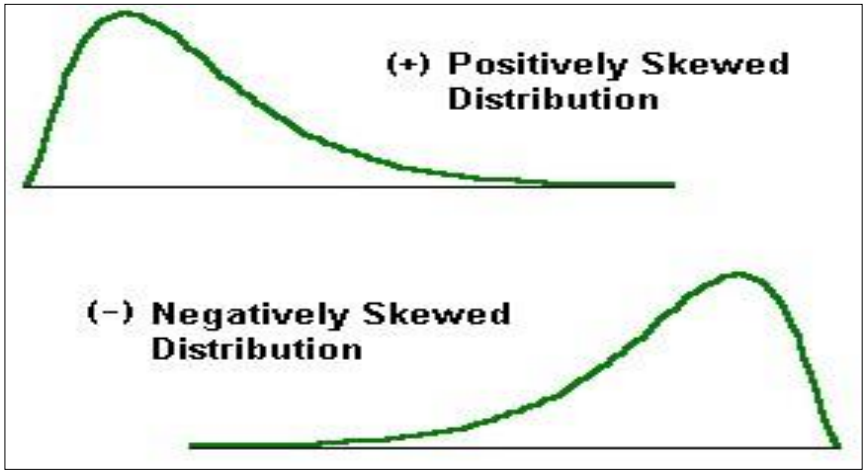
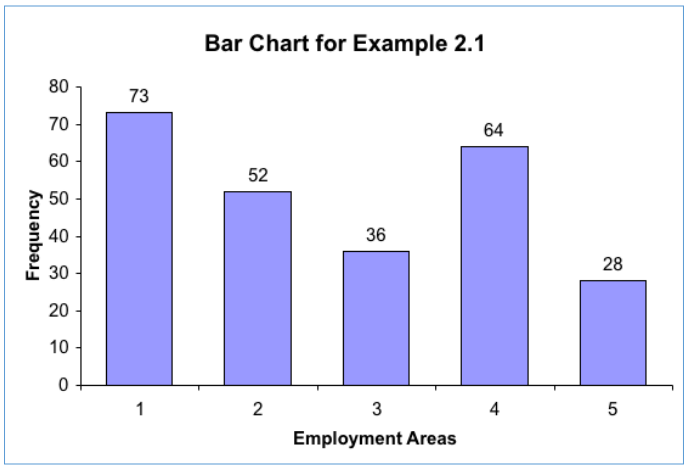


FIGURE 19.3 Examples of symmetric distributions.

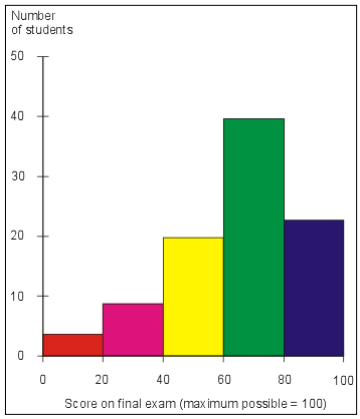
Shape of the distribution



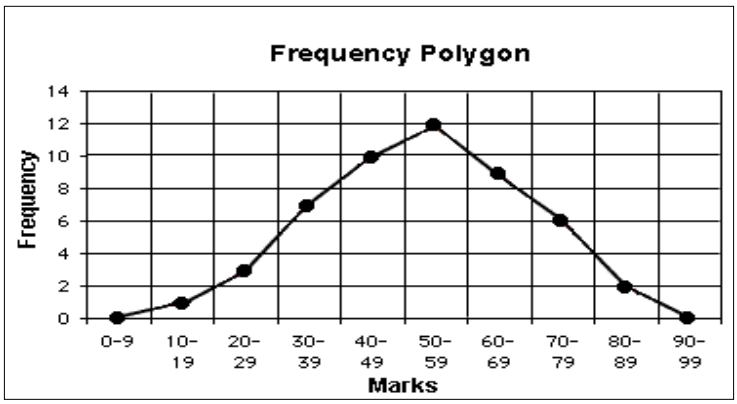
Graphic presentation
Bar graph



Graphic presentation Histogram



Graphic presentation polygon



Central tendency
Mode

- **Mode** is the most frequent occurring score value in a distribution.

  2, 3, 4, 2, 2, 7, 9, 9, 6, 5, 2,
- **Median** is the point in a distribution above which and below which 50% of cases fall

  2, 2, 2, 2, 3, 4, 5, 6, 7, 9, 9
- **Mean:** sum of all scores divided by the total number of scores

$$\bar{x} = \frac{\sum_{i=1}^{n} x_i}{n}$$

TABLE 19.3 Frequency Distribution of Test Scores

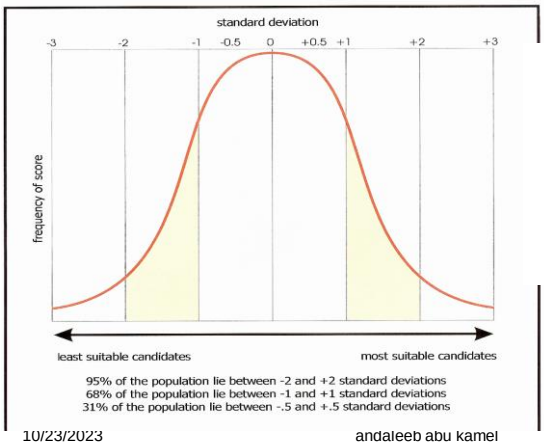
SCORE (X)	TALLIES	FREQUENCY (f)	PERCENTAGE (%)
15	I	1	1.7
16	II	2	3.3
17	II	2	3.3
18	III	3	5.0
19	II	2	3.3
20	IIII	4	6.7
21	III	3	5.0
22	IIII	4	6.7
23	𝍸	5	8.3
24	𝍸 IIII	9	15.0
25	𝍸 II	7	11.7
26	𝍸 I	6	10.0
27	IIII	4	6.7
28	III	3	5.0
29	III	3	5.0
30	II	2	3.3
		$N = 60 = \Sigma f$	$\Sigma\% = 100.0\%$

TABLE 19.6 Contingency Table for Gender and Smoking Status Relationship

	GENDER					
	Women		Men		Total	
SMOKING STATUS	*n*	%	*n*	%	*n*	%
Nonsmoker	10	45.4	6	27.3	16	36.4
Light smoker	8	36.4	8	36.4	16	36.4
Heavy smoker	4	18.2	8	36.4	12	27.3
TOTAL	22	100.0	22	100.0	44	100.0

Variability
Standard Deviation

- Standard deviation: the average amount of deviation of values from the mean



$$\sqrt{\frac{\sum_{i=1}^{n}(x_i - \bar{x})^2}{(n-1)}}$$

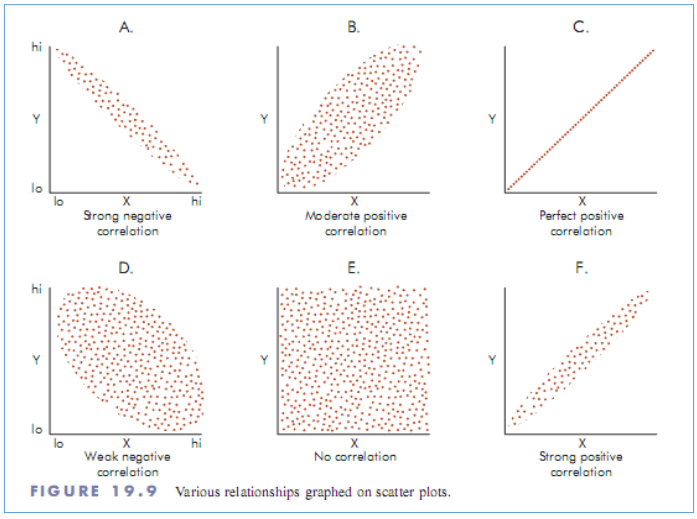


FIGURE 19.9 Various relationships graphed on scatter plots.

Data Analysis
Qualitative study

	I hate being on welfare, it is a pain in the butt. I don't need their cash, but the food stamps, they	A1
B1	help a lot because it is hard, it is really hard. I got to live day by day for food for my kids. I have to	
	call down to the shelter to get them to send you	A3
	food, and you hate doing that because it is embarrassing, but I have to live day by day. I	D3
	have to do things so my kids can eat. I don't worry about me, just for my kids because I can go a day without eating, but as long as my kids eat.	
D1	But I never have to worry about my kids starving because I have family.	C3

FIGURE 23.2 Coded excerpt from Polit et al. (2000) study.

A. Use of Food Services/Programs
1. Food stamps
2. WIC
3. Food pantries
4. Soup kitchens
5. Free school lunch programs

B. Food Inadequacy Experiences
1. Problems feeding family, having enough food
2. Having to eat undesirable food
3. Hunger

C. Strategies to Avoid Hunger
1. Bargain shopping
2. Borrowing money
3. Getting food from friends, relatives
4. Eating old or unsafe food
5. Doubling up to share food costs
6. Stretching food, smaller portions
7. Smoking in lieu of eating
8. Illegal activities, fraud

D. Special Issues
1. Mothers sacrificing for children
2. Effects of welfare reform on hunger
3. Stigma

FIGURE 23.1 Polit et al.'s (2000) coding scheme for food insecurity and hunger in low-income families.

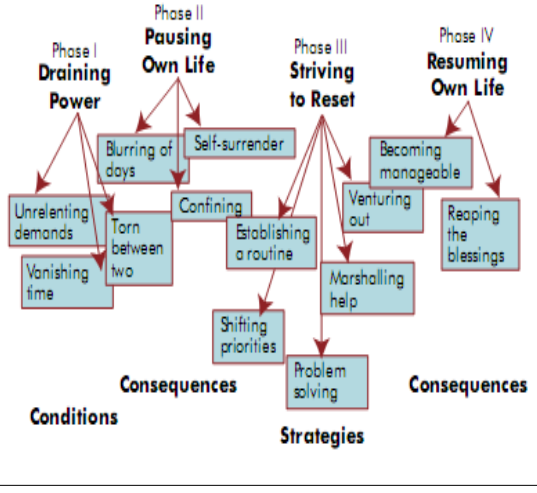


FIGURE 23.5 Beck's (2002) model of mothering twins.

TABLE 23.3 Collapsing Level I Codes Into the Level II Code of *"REAPING THE BLESSINGS"* (Beek, 2002)

QUOTE	LEVEL I CODE
I enjoy just watching the twins interact so much. Especially now that they are mobile. They are not walking yet but they are crawling. I will tell you they are already playing. Like one will go around the corner and kind of peek around and they play hide and seek. They crawl after each other. (3)	Enjoying Twins
With twins it's amazing. She was sick and she had a fever. He was the one acting sick. She didn't seem like she was sick at all. He was. We watched him for like 6–8 hours. We gave her the medicine and he started calming down. Like WOW! That is so weird. Cause you read about it but it's like, Oh come on! You know that doesn't really happen and it does. It's really neat to see. (15)	Amazing
These days it's really neat cause you go to the store or you go out and people are like "Oh, they are twins, how nice". And I say, "Yeah they are. Look, look at my kids". (15)	Getting Attention
I just feel blessed to have two. I just feel like I am twice as lucky as a mom who has one baby. I mean that's the best part. It's just that instead of having one baby to watch grow and change and develop and become a toddler and school age child you have two. (11)	Feeling Blessed
It's very exciting. It's interesting and it's fun to see them and how the twin bond really is. There really is a twin bond. You read about it and you hear about it but until you experience it, you just don't understand. One time they were both crying and they were fed. They were changed and burped. There was nothing wrong. I couldn't figure out what was wrong. So I said to myself, "I am just going to put them together and close the door." I put them in my bed together and they patty caked their hands and put their noses together and just looked at each other and went right to sleep. (15)	Twin Bonding