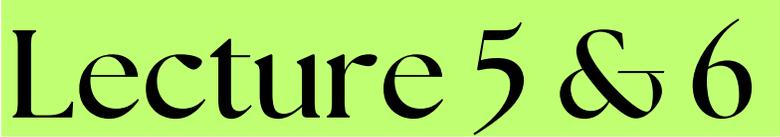




# Biostatistics



## Archive



## Lecture 5 & 6



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1. One of the following is not correct regarding the normal distribution curve:

- a. It is determined by SD and mean
- b. It is determined by SD and mode
- c. It is a bell-shaped curve
- d. It is used for calculating CI
- e. It is used for justifying CI

**Answer: B. It is determined by SD and mode**

2. One of the following statements is incorrect regarding symmetrical distributions:

- a. If a distribution is asymmetrical it is considered to be skewed
- b. The tail of a distribution indicates the type of skewness
- c. The symmetry of variation indicated by skewness
- d. If the tail goes to the left, the distribution is skewed to the right and it is positively skewed
- e. A symmetrical distribution has no skewness

**Answer: D. If the tail goes to the left, the distribution is skewed to the right and it is positively skewed**

3. One of the following statements regarding standard normal distribution is incorrect:

- a. Standard normal distribution may not be symmetrical
- b. For a distribution to be normal, a certain proportion of the entire area must occur between specific values of the SD
- c. Standard normal distribution has a graph and an equation
- d. None of the above is incorrect

**Answer: A. Standard normal distribution may not be symmetrical**

4. If the birth weight of each of the 100 babies born in a hospital during April was found to be 2.25 kgs. The SD of this sample will be:

- a. 2.25
- b. 0
- c. 1
- d. 0.025
- e. 0.0025

**Answer: B. 0**

5. In a normal distribution curve, the mean  $\pm$  3 SDs cover:

- a. 67%
- b. 60%
- c. 95%
- d. 99%
- e. 5%

**Answer: D. 99%**

6. Normal distribution curve is determined by:

- a. IQR and mean
- b. Mode and SD
- c. Mean and SD
- d. Mode and median
- e. SD and median

Answer: C. Mean and SD

7. Given a distribution with a mean of 32 and a SD of 4. The score that will be associated with a standard score of 1.5:

- a. 42
- b. 40
- c. 26
- d. 32
- e. 38

Answer: E. 38

A real score = (its standard score \* SD) + mean

8. In a normal distribution curve, the area of more than 2 SDs is:

- a. 68%
- b. 99%
- c. 95%
- d. 5%
- e. 97%

Answer: D. 5%

9. The area under the standard normal distribution curve between the mean and minus 3 SD is:

- a. 99.7%
- b. 49.85%
- c. 45%
- d. 68%

Answer: B. 49.85%

10. A 95% confidence interval for a population mean will be \_\_\_\_\_ a 99% confidence interval for the same population means. (Both calculations are based on the same set of data)

- a. Longer than
- b. Shorter than
- c. As long as
- d. Can't decide, it depends on the particular sets of data
- e. No decision can be given

Answer: B. Shorter than

11. A 99% confidence interval for a population mean will be \_\_\_\_\_ a 95% confidence interval for the same population means. (Both calculations are based on the same set of data)

- a. Longer than
- b. Shorter than
- c. As long as
- d. Can't decide, it depends on the particular sets of data
- e. No decision can be given

Answer: A. Longer than

12. The area under the standard normal curve between 1 and 2 SD (from both side) in the population is:

- a. 13.6%
- b. 27.2%
- c. 95%
- d. 68%
- e. 34.1%

Answer: B. 27.2%

13. The area under the standard normal distribution curve between the mean and minus 2 SD is:

- a. 45%
- b. 49.85%
- c. 47.7%
- d. 27.2%

Answer: c. 47.7%

14. If you are told the students' mark has a mean of 65 and a variance of 0, we conclude:

- a. All the students have marks of 65
- b. There are no marks for the students
- c. There are 65 students
- d. Only one mark is available
- e. Someone has made a mistake

Answer: A. All the students have marks of 65

15. In a group of 100 women the mean weigh is 60 kgs and the standard deviation is 2.5 kgs. One of the following is correct:

- a. 95% of all women weigh between 55 and 65 kgs
- b. 95% of all women weigh between 57.5 and 62.5 kgs
- c. 99% of all women weigh between 55 and 65 kgs
- d. 99% of all women weigh between 57.5 and 62.5 kgs
- e. 68% of all women weigh between 55 and 65 kgs

Answer: A. 95% of all women weigh between 55 and 65 kgs

16. The mean body weight of 70 children is 15 kgs and the standard deviation is 1.5 kgs. One of the following statements is correct: a. 95% of all children weigh between 10.5 and 19.5 kgs b. 95% of all children weigh between 13.5 and 16.5 kgs c. 99% of all children weigh between 12 and 18 kgs d. 99% of all children weigh between 13.5 and 16.5 kgs e. 99% of all children weigh between 10.5 and 19.5 kgs

**Answer: E. 99% of all children weigh between 10.5 and 19.5 kgs**

17. The mean body weight in a group of 100 adult males is 170 lb with a SD of 1.5 lb. The correct statement is:

- a. 95% of population weights full between 167- 173 lb
- b. 95% of population weights full between 168.5- 171.5 lb
- c. 68% of population weights full between 167- 173 lb
- d. None of the population weighs more than 175 lb
- e. None of the population weights less than 165 lb

**Answer: A. 95% of population weights full between 167- 173 lb**

18. Characteristics of a population are called \_\_\_\_\_, while those of sample are termed \_\_\_\_\_:

- a. Statistics, measures
- b. Statistics, parameters
- c. Parameters, statistics
- d. Measures, statistics
- e. Parameters, variables

**Answer: C. Parameters, statistics**

19. Mean hemoglobin level of 64 females was 10 gm % with a SD of 1 gm %. The standard error will be:

- a. 0.0156 gm%
- b. 10 gm%
- c. 1 gm%
- d. 0.1 gm%
- e. 0.125 gm%

**Answer: E. 0.125 gm%**

20. "Standard deviation divided by square root of sample size", the previous statement is the mathematical definition of: a. CV b.  $\sigma$  c. SE d.  $\bar{X}$  e.  $\mu$

**Answer: C. SE**

21. AUC in an NDC by more than 3 SDs on both sides is:

- a. 0%
- b. 68%
- c. 5%
- d. 95%
- e. 1%

Answer: E. 1%

22. Standard error is the measure of:

- a. Chance
- b. Central tendency
- c. Deviation of the population mean from the sample mean value
- d. Measures between highest and lowest values
- e. Deviation of the sample mean from the population mean value

Answer: E. Deviation of the sample mean from the population mean value

23. The average deviation of the sample's mean from the population mean is well known as:

- a. Range
- b. Sampling error
- c. Standard deviation
- d. Standard error
- e. Coefficient of variation

Answer: D. Standard error

24. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell- shaped, continuous curve
- b. The tail never touches the base
- c. The mean, mode and median values are equal to one
- d. It is described by two parameters; the mean and the standard deviation
- e. About 95% of the probability under the curve fall within two standard deviations around the mean

Answer: C. The mean, mode and median values are equal to one

25. Variation in the results of sampling in the same population is due to:

- a. Standard error
- b. Coefficient of variation
- c. Range
- d. Sampling error
- e. Standard deviation

Answer: D. Sampling error

26. In a sample of 16 adolescent females the mean hemoglobin level was estimated to be 10 mg/dl with a SD of 1 mg/dl. The SE will be:

- a. 0.625 mg/dl
- b. 0.0625 mg/dl
- c. 2.5 mg/dl
- d. 0.25 mg/dl
- e. 1 mg/dl

Answer: D. 0.25 mg/dl

27. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell- shaped, continuous curve
- b. The tail never touches the base
- c. The mean, mode and median values coincide
- d. It is described by two parameters; the mean and the standard deviation
- e. About two thirds of the AUC fall are covered by more than one SD around the mean

Answer: E. About two thirds of the AUC fall are covered by more than one SD around the mean

28. Suppose we are interested in the average cholesterol level measurements of the population at Al- Karak Governorate: the set of cholesterol measurements of people at Mu'tah district comprise:

- a. Parameters
- b. Statistics
- c. A sample
- d. An element
- e. A population

Answer: C. A sample

29. The standard error of the mean is affected by:

- a. Median of the data
- b. Mean of the data
- c. Population size
- d. Type of the sample
- e. Sample size

Answer: E. Sample size

30. A population is:

- a. A subset of a population
- b. A subset of a sample
- c. A number of measurements collected as a result of observation
- d. A complete set of individuals, objects or measurements having some common observable characteristics
- e. A characteristic of a population which is measurable

Answer: D. A complete set of individuals, objects or measurements having some common observable characteristics

31. To cover 95% of the population under the normal distribution curve we have to:

- a. Move one SE above and below mean
- b. Move 1.645 SE above and below mean
- c. Move 1.96 SE above and below mean
- d. Move 2.58 SE above and below mean
- e. Move 3 SE above and below mean

Answer: C. Move 1.96 SE above and below mean

32. In Gaussian distribution, one of the following characteristics is incorrect:

- a. It is a bell-shaped, continuous curve
- b. The tail never touches the base
- c. The mean equals one and the SD equals zero
- d. It is described by two parameters; the mean and the standard deviation
- e. About 95% of the probability under the curve fall within two standard deviations around the mean

Answer: C. The mean equals one and the SD equals zero

33. If we want to cover 99% of the population under the normal distribution curve we have to:

- a. Move one SD above and below the mean
- b. Move 2.58 SE above and below the mean
- c. Move 1.96 SD above and below the mean
- d. Move 2.58 SD above and below the mean
- e. Shift 2 SD above and below the mean

Answer: B. Move 2.58 SE above and below the mean

34. AUC in an NDC by more than 2.58 SE on both sides is:

- a. 0%
- b. 68%
- c. 5%
- d. 95%
- e. 1%

Answer: E. 1%

35. The characteristics of Normal Distribution curve include the following EXCEPT?

Select one:

- a. It can be used for normal and abnormal values in medicine
- b. Mean, median and mode are identical
- c. All the variable distributed in area under the curve in a homogenous form
- d. It is bell shaped
- e. It is bimodal

Answer: E. it is bimodal

36. The standard error is:

- a. Directly affected by the variance of the data
- b. Directly affected by the sample mean
- c. Directly affected by the sample size
- d. Indirectly affected by the sample mean
- e. None of the above

Answer: A. Directly affected by the variance of the data

37. CI is calculated by using:

- a. The mean and its SE
- b. The mean and its SD
- c. The median and its SD
- d. The median and its range
- e. The mean and its range

Answer: A. The mean and its SE

38. The mean Systolic blood pressure, of 100 teachers is 110 :10 mmHg. The standard error equal:

- A. 1
- B. 10
- C. 11
- D. 100
- E. Cannot be calculated using the given info

Answer: A. 1

39. Standard deviation of the sampling distribution of averages (means) is:

- a. S
- b.  $\sigma$
- c. V
- d. SE

Answer: D. SE

40. Covering 95% of the population mean under the normal distribution curve we have to:

- a. Move 1.96 SD above and below the mean
- b. Move 2 SD above and below the mean
- c. Move 1 Sd above and below the mean
- d. Move 1.96 SD and one below the mean
- e. Move 2.58 SD above and below the mean

Answer: B. Move 2 SD above and below the mean

41. Consider the following data set: 10, 15, 20, 25, 30. The coefficient of variation (CV) for this data set knowing that the SD is 7 will be:

- a. CV = 20%
- b. CV = 33.33%
- c. CV = 50%
- d. CV = 66.67%
- e. CV = 100%

Answer: B. CV= 33.33%

42. “sample size minus 1” this is the humble definition of:

- a. DF
- b. CV
- c. CI
- d. SE

Answer: a. DF

43. For a symmetrical distribution, the mean and the median are:

- a. Equal
- b. Preset at equal distances on opposite sides of the mode
- c. Always different
- d. Possibly the same and possibly different
- e. None of the above

Answer: A. Equal

44. If the size of the sample being used to assess blood pressure at Al- Karak is increased. The width of a 0.95 CI estimate of the mean of blood pressure for Al-Karak population:

- a. Won't change, as there is no relationship between the size of the sample and the CI.
- b. Will become narrower
- c. Will become wider
- d. Can't decide, the effect on the width cannot be determined from the given information

Answer: B. Will become narrower

45. Given a mean of 50, SD of 5 and a sample size of 100. One of the following is correct:

- a. variance= 2.23
- b. variance= 125
- c. SE= 0.05
- d. SE= 0.5

Answer: D. SE= 0.5

46. If you want to compare the presence of cancer risk factors between residents in Amman and Aqaba. The best way to collect data is:

- a. Experiments
- b. Surveys
- c. Both of the above
- d. None of the above

**Answer: B. Surveys**

47. The purposes of collecting random samples from a population include all of the following except:

- a. To obtain a sample that will be representative for the population
- b. To determine the sample size, for selecting a small one for example
- c. To give every member in the population an equal chance to appear in the study
- d. To give all members in the population the same probability of selection
- e. To eliminate the selection bias

**Answer: B. To determine the sample size, for selecting a small one for example**

48. Methods of data collection include all of the following except:

- a. Collecting data through comprehensive surveys
- b. Collecting data through sample surveys
- c. Collecting data through population census
- d. Collecting data through hotel records
- e. Collecting data through hospital records

**Answer: D. Collecting data through hotel records**

49. One of the following is not a source of secondary data:

- a. Vital events registration
- b. Hospital records
- c. Online questionnaire
- d. Disease registration
- e. Environmental health

**Answer: C. Online questionnaire**

50. One of the following is not a method used to collect primary data:

- a. Interviews
- b. Questionnaires
- c. Surveys
- d. Experimentations
- e. Census

**Answer: E. Census**

51. One of the following is not a disadvantage of primary data:

- a. low effort
- b. high time consumption
- c. inaccurate feedbacks
- d. more resources required

Answer: A. Low effort

52. all of the following are disadvantages of secondary data except:

- a. high cost to acquire
- b. not timely
- c. incomplete spending of info
- d. not specific to researcher's needs.

Answer: A. High cost to acquire.

53. All of the following are advantages of primary data except:

- a. Targeted Issues are addressed
- b. Addresses specific research issues
- c. decency of data
- d. low cost to acquire

Answer: D. Low cost to acquire

54. Standard deviation of the sampling distribution of averages (means) is

- : a. Standard error
- b. Coefficient of variation
- c. Range
- d. Sampling error
- e. Standard deviation

Answer: a. Standard error

55. 300 student take an exam, the mean 76 and standard deviation 8 Find the number of students who scored between 70 and 82

- a. 164
- b. 120
- c. 50
- d. 88
- e. 75

Answer: a. 164

56. The area under the curve between plus 2 and minus 1 s.d:

- a. 21
- b. 82
- c. 99
- d. 68

Answer: b. 82

57. The area under the curve between zero and plus 2:

- a. 47
- b. 68
- c. 99
- d. 95

Answer: a. 47

58. If we increase the sample size, occurs:

- A. Decrease CI
- B. Increase CI
- C. CI constant
- D. Increase SE

Answer: A. Decrease CI

59. Standard deviation of the sampling diversion of averages called?

- A) Variance
- B) Standard error of the mean
- C) Population standard deviation
- D) Sampling variance

Answer: B) Standard error of the mean