

Final Biostatistics

1. Which of the following observational studies are related to the grouped data?

Select one

A. Ecological study

b. Cross-sectional study

c. Cohort study

d. Case control study

e. Clinical trial

2. Which of the following statements is correct?

Select one

a. A case control study is more expensive, in comparison to cohort study.

b. A case control study needs a long period to yield the results, whereas cohort study yielding relatively quick results

c. A case control study is more appropriate when the disease under investigation is rare in comparison to cohort study

d. A case control study needs a large sample size in comparison to cohort study.

e. A case control study starts with exposure to risk factor or suspected cause, while cohort study starts with a disease

3. if the Sample size equal to 256 teachers, and the Mean Systolic blood pressure equal to 120 mmHg. and the Standard deviation equal to 6. So, the percentile ranks of a teacher whose blood pressure equal to 126 mmHg is?

Select one

- a. 20th
- b. 65th
- c. 3rd
- d. 84th**
- e. Can't be calculated.

4. This data 13, 27, 29, 5, 11, 5, 2, 1, 3, 6, 2 is?

Select one

- a. Unimodal
- b. Bimodal**
- c. Trimodal
- d. Non-modal
- e. Quad modal

5. False about cohort study is?

Select one

- a. Proceeds from cause to effect

- b. More than one disease can detected.
- c. Relative risk can be determined
- d. Helpful for evaluation of rare disease**
- e. Cases have to be followed for a long time.

6. A case control study was conducted, to investigate relation of tobacco viewed with oral cancer it's observed that 35 out of 50 patients were tobacco chewers, as compared to 20 tobacco chewers out of 50 control subjects. The odds ratio of oral cancer associated with tobacco chewing will be?

Select one

- a. 6.0
- b. 35
- C. 3.5**
- d. 1.75
- e. 3.5%

7. if you want to compare the presence of cancer risk factors between residents in Amman and Aqaba, the best study to conduct is?

Select one

- a. Cross-sectional study
- b. Clinical trail
- case control study

d. Cohort study

e. Survey

8. The best graphical presentation of the COVID-19 in Jordan in the past 5 months is?

Select one.

a. Bar graph

b. Pie chart

c. Line graph

d. Histogram

e. Frequency polygon

9. Concerning chi square test all the following statements are true EXCEPT?

Select one:

a. Applied when we have absolute frequency.

b. It is used when we have two groups of population

c. Cannot be applied when we have proportion rate alone

d. It is used when we have more than two groups of population

e. Degree of freedom is 1 always

10. The median of this data 8, 1, 7, 8,3, 3, is?

Select one

a. 7

b. 5

c. 7.5

d. 8

e. 4.5

11. Characteristics of a population are called _____ ,while those of sample are termed _____ ?

Select one

a. Statistics, measures

b. Parameters; statistics

c. Statistics: variables

d. Statistics, parameters

e. Variables, measures

12. One statement is INCORRECT for the assumption of paired t test?

Select one

a. Normal distribution of the population of the sample

b. Randomization of the sample

c. The data are categorical

- d. Dependency of the sample
- e. The data are continuous

13. The mean body weight in a group of 100 adult males is 170 lb with a S.D 15 lb one statement is correct?

Select one:

- a. 95% of population weights full between 167-173 lb**
- b. 95% of population weights fall between 168.5-171.5 lb
- C. 68% of population weights full between 167-173 lb
- d. None of population weight more than 175 lb
- e. None of population weight is less than 165 lb

14. When using alpha level of 0.05, then the test considered statistically significant if?

Select one

- a. $p=0.052$
- b. $p=0.04$**
- c. $P=0.1$
- d. $p= 0.5$
- e. $p= 0.2$

15. The Z-score corresponding to the 89th percentile is?

Select one

- a. 2.44
- b. 1.05
- C. 0.88
- d. 1.23**
- e. 0.48

16. All the following are true about Case Series studies, EXCEPT?

Select one

- a. Experience of a group of patients with a similar diagnosis
- b. Cases may be identified from a single or multiple sources
- C. Assesses incident disease**
- d. Generally report on new or unique condition
- e. May be only realistic design for rare disorders

17. What percent of the area of a distribution lies between the first and third Quartiles?

Select one

- a. 25
- b. 50**
- C. 68
- d. 75

e. The question can't be answered without knowledge of the specific distribution

18. Mean hemoglobin level of 64 females, was 10 gm% with a Standard deviation of 1 gm% What is the Standard error?

Select one

a. 0.0156 gm%

b. 10 gm%

C. 0.125 gm%

d. 0.1 gm%

e. 1 gm%

19. One is not correct at statement, regarding the normal distribution curve it is?

Select one

a. Determined by Standard deviation and mean

b. Standard deviation and mode

c. Bell shape

d. Used for calculation of confidence interval

e. Used for justification of confidence interval

20. The relation of lung cancer and cigarette smoking was studied, a group of patients with lung cancer was collected and compared with

lung cancer free group the number and duration of cigarette smoking was then compared in the ho groups of the following statements, one is correct?

Select one

- a. This study is a prospective cohort.
- b. Incidence of disease can be calculated
- c. Prevalence of cigarette smoking can be calculated**
- d. Relative risk can be measured
- e. Prevalence disease can be calculated

21. Which of the following statements is Not true about cohort study?

Select one:

- a. Provides incidence of disease
- b. Indicated when there is good evidence of association between exposure and disease
- c. Done when ample funds are available
- d. study starts with exposure to risk factor
- e. Done when disease is very is rare**

22. Six babies born in a hospital in one day with a birth weight of each as 2.5 kg. then the standard deviation of this sample will be

Select one

a.2.5

b.0

c.1

d.0.25

e. 0.1

23. If we want to know whether Indian women are taller than Jordanian women according to the height cm And we know the following information for Indian women sample size =60, mean height=180 cm, standard deviation =5. And for Jordanian women, sample size=50; mean height 170 cm, standard deviation= 3 (Assuming that level of significance or alpha=0.05, and two-sided test) Th Calculated Value (1) is?

Select one

a. 10.5

b.6.3

c.3.8

d. 7.2

e. 12.4

24. One statement is true regarding chi square test?

Select one

- a. The tabulated value depends on sample size
- b. it depends on both the observed and the expected values of each cell**
- c. Used for quantitative data
- d. The expected value of each cell must be greater than the observed value
- e. Degree of freedom is N-1

25. The following formula is used for calculating SD/\sqrt{N} ?

Select one

- a. Coefficient of variation
- b. variance
- C. S.E**
- d. Mean
- e. Population mean

26. Assume that the test scores of 500 students are normally distributed with a mean of 80 and a standard deviation of 4 The number of students scoring between 86 and 827

Select one

- a. 155
- b. 146
- C. 121**
- d. 228

e. can't be calculated

27. The value of an odd's ratio was studied for disease and cause and found as 1. It indicates?

Select one

a. Protective factor

b. No association

c. Positive association

d. Unsatisfactory data

e. Incorrect calculation

28. Accept the null hypothesis while it is false?

Select one

a. Type I error (Alpha Error)

b. Type II Error (Beta Error)

c. Power of the study

d. A correct decision

e. Information is not enough to decide

29. When we accept the null hypothesis (at level of significance = 0.05) this means that?

Select one

- a. $p > 0.003$
- b. $p < 0.005$
- C. $p > 0.100$**
- d. $p < 0.010$
- e. $p < 0.030$

30. One minus Power of the test?

Select one

- a. Type I error (Alpha Error)
- b. Type II Error (Beta Error)**
- c. A correct decision
- d. Level of significance
- e. External validity

31. Which is INCORRECT statement about the symmetrical distribution?

Select one

- 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 is positively skewed

e. A symmetrical distribution has no skewness

32. Reject the null hypothesis while it is false?

Select one

a. Type error (Alpha Error)

b. Type II Error (Beta Error)

C. A correct decision

d. Information is not enough to decide

e. Power of the study

33. The mode is the?

Select one

a. Middle value of the arranged data from lowest to the highest values

b. Value of subtracting the smallest value from a largest value of observations

C. Summation of all values, divided by number of observations

d. Deviation of observation from the mean

e. Value with the highest frequencies in a set of data

34. Degree of freedom in applying chi square test of 4x4 contingency table is?

Select one

- a. 8
- b. 16
- c. 6
- d. 4
- e. 9**

35. The Temporal Sequence of exposure and effect may be difficult to determine in?

Select one

- a. Case series studies
- b. Clinical trial
- C. Case control study
- d. Cross-sectional study**
- e. Cohort study

36. distribution is relatively flat in the middle and has thin tail: it has?

Select one

a. Negative skewness

b. Little Kurtosis

c. Positive skewness

d. Multi-modal

e. Large Kurtosis

37. Area under the curve in normal distribution curve by more than 3 S.D on both sides is?

Select one:

a. 33%

b. 68%

c. 5%

d. 95%

e. 1%

38. One statement is correct regarding the Chi square validity?

Select one

a. Chi square can apply when the total number is less than 20

b. When the overall total less than 20, all expected values should be at least 1

C. More than 20% of expected numbers should be less than 5

d. None of expected numbers should be is less than 1

e. Applied to the table showing just proportions or percentages

39. in a normal distribution with mean 40 and variance 16 at what percentile rank does a score of 50 falls?

Select one

a. 99.38%

b. 82.57%

C. 49.18%

d. 12.44%

e. 50.85%

40. Recall bias is most associated with which study design?

Select one

a. Case control study

b. Cohort study

C. case report

d. Cross-sectional study

e. Case series study

41. The percent of area of normal curve between $z=-0.97$ and the mean is?

Select one

- a. 11.79 %
- b. 61.79 %
- c. 33.40 %**
- d. 50.33 %
- e. Can't be calculated

42. All the following are advantages of Case Series studies, EXCEPT?

Select one

- a. Useful for hypothesis generation
- b. Informative for very rare disease with few established risk factors
- c. Characterizes averages for disorder
- d. Can study cause and effect relationships.**
- e. Cannot assess disease frequency

43. Assuming that level of significance or $\alpha=0.05$, and two-sided test The Calculated Value (t) = 1.78, and the sample size (n) = 78. So, the p-value is?

Select one

- a. $P < 0.001$
- b. $P = 0.010$
- c. $P < 0.05$ and > 0.010
- d. $P < 0.05$ and > 0.020
- e. $P < 0.100$ and > 0.050**

44. Standard error is the measure of

Select one

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

45. If it is known that the mean blood sugar of adults in Jordan is: 120 (u) and we want to test whether mean blood sugar of adults in Karak governorate is the same or different from the Jordanian population. The sample size = 81 adults, their arithmetic mean of blood sugar = 124 and standard deviation = 18. (Assuming that level of significance or alpha = 0.05, and two-sided test). The Calculated Value(t) is?

Select one

a. 1.55

b. 2.00

c. 3.22

d. 2.50

e. 4.15

46. In two tailed t- test at alpha = 0.01 and total subjects = 29. The critical t value is?

Select one.

a. 2.05

b. 1.70

C. 1.96

d. 2.76

e. 3.46

47. Adding all values in a data together divided by number of observations in that?

Select one

a. Interquartile range

b. Range

C. Mean

d. Standard deviation

e. Median

48. The average deviation of the sample's mean, from the population mean is known as?

Select one

a. Range

b. Sampling error

c. Standard deviation

d. Standard error

e. Coefficient of variance

Answer is : D

49. On the same test. Sara scored at the 95th percentile, and Dina scored at the 87th This means that?

Select one

a. Dina is 8% better than Sara

b. Sara is 8% better than Dina

c. Sara scored 8 more points than Dina

d. 8% of those taking the test got scores ranging between Sara's and Dina's

e. There were only 8 people smarter than both Sara and Dina

50. Prevalence rate of a disease is calculated from?

Select one

- a. Prospective cohort study
- b. Case series study
- c. Case report study
- d. Cross Sectional study**
- e. Case-control study

51. Out of 19 birth in a hospital. 9 babies weighed more than 25 kg., and 9 weighed lower than 2.5 kg what value do 2.25 represent?

Select one

- a. Mean
- b. Standard deviation
- c. Median**
- d. Moden
- e Standard error

52. The mean body weight of 70 children is 15 kg, and standard deviation is 1.5 kg. Which one of the following is true?

Select one

- a. 95% of all children weight between 10.5 and 19.5 kg

- b. 95% of all children weight between 13.5 and 16.5kg
- C. 99% of all children weight between 12 and 18 kg
- d. 99% of all children weight between 13.5 and 16.5kg
- e. 99% of all children weight between 10.5 and 19.5 kg**

**53. In assessment of Intelligence Quotient of 240 primary school children one child had a score greater than 60 of the total children
What is the percentile rank of this child**

Select one

- a. 90th
- b. 75th
- C. 25th**
- d. 44th
- e. Can't be calculated

54. Gaussian distribution are characterized by all of the following EXCEPT?

Select one

- a. it is bell shaped, continuous curve
- b. The tail never touch the base
- c. The mean equal one and the standard deviation equal zero**

- d. it is described by two parameters the mean and standard deviations
- e. About 95% of the probability under the curve fall within two standard deviation around the mean

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

Select one

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

56. Following are, the purposes of collecting a random sample, EXCEPT?

Select one

- a. To obtain a sample that, will be representative for the population
- b. To determine the sample size**
- c. To give every member in the population an equal chance be appeared in the study
- d. To give all members in the population same probability of selection
- e. To get rid of a selection bias

57. Given that a distribution has a mean of 32 and a standard deviation of 4 what score will be associated with a standard Z score of 2?

Select one

a. 26

b. 32

c. 38

d. 40

e. 42

58. If we want to cover 95% of the population under the normal distribution curve, we have to?

Select one

a. Move one I S.E above and one S.E below the mean

B. Shift 2 S.E above and below the mean

C. Move 1.96 SE above and below the mean

d. Move 2.58 S E above and below the mean

e. Move 2 S.D above and below the mean

59. The temperature of 10 subjects suffering from tonsillitis before (40, 40, 37, 38, 39, 39, 38, 38, 39, 38) and after 4 hours of Panadol therapy became (37.38.38,38.37.37.38.38.37,37), Respectively (Assuming that level of significance or $\alpha=0.05$, and two-sided test) The Calculated value(t) is?

Select one

a. 5.1

b. 1.2

c. 3.2

d. 6.6

e. 2.7

60. If alpha level set to be 0.01 then The test considered to be statistically not significant when?

Select one

a. $p=0.007$

b. $p =0.005$

C. $p=0.001$

d. $p=0.013$

e. $p=0.000$

