



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCES
DEPARTMENT OF REHABILITATIVE MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF TRIMESTER EXAMINATIONS SEPTEMBER TO DECEMBER 2022**

UNIT CODE: PHT 316

UNIT NAME: Research Methods

INSTRUCTIONS

- 1. All students will have two (2) hours to complete the examination**
- 2. Attempt all questions as per the instruction**
- 3. It is the student's responsibility to report any page and number missing in this paper.**
- 4. Check that the paper is complete**
- 5. Total number of pages is 12 including the cover.**
- 6. Read through the paper quickly before you start.**
- 7. The exam is worth a total of 60 questions.**

MULTIPLE CHOICE QUESTIONS

1. Which of the following examples is not considered a violation of ethical research practices?
- A. Violating participant confidentiality
 - B. Making recommendations/conclusions beyond the scope of the data collected
 - C. Utilizing an inappropriate research design
 - D. Changing data to meet a desired outcome
 - E. All of the above are considered violations of ethical research practices

ANSWER: C

2. Consideration of any potential benefits to the communities where the research will be conducted is part of the beneficence principle.
- A) True
 - B) False

ANSWER: A

3. The ideal of non-maleficence requires that risks associated with research participation must be reduced to a minimum.
- A) True
 - B) False

ANSWER: A

4. Social and economic conditions that make persons vulnerable do not have to be considered by researchers.
- A) True
 - B) False

ANSWER: B

5. It is acceptable to conduct research studies in low-resource communities for the benefit of more privileged communities that pay for the research.
- A) True
 - B) False

ANSWER: B

6. The principal investigator is the only person permitted to obtain informed consent.
- A) True
 - B) False

ANSWER: B

7. Informed consent refers to a point in the research process when participants sign the informed consent document.
- A) True
 - B) False

ANSWER: B

8. Local customs do not affect the development of informed consent.
- A) True

B) False

ANSWER: B

9. Receiving a free, safe, and effective treatment is an important benefit of participating in a clinical trial.

A) True

B) False

ANSWER: B

10. A researcher cannot make changes to a research protocol/methodology, even minor ones without the ethics committee approval.

A. True

B. False

ANSWER: A

11. What is a research design?

A. A way of conducting research that is not grounded in theory.

B. The choice between using a qualitative and quantitative method.

C. The style that is selected to present the research findings

D. A framework for every stage, from the collection of data to the analysis of the data.

E. The determination of the sampling process

ANSWER: D

12. If a study is “reliable”, this means that:

A. The methods are outlined in the methods section clearly enough for the research to be replicated.

B. The outcome measures used are stable at different time points.

C. The findings are generalizable.

D. The study was conducted by a reputable researcher who can be trusted.

E. All of the above.

ANSWER: B

13. The internal validity of a survey/questionnaire as a whole or an individual question, refers to:

A. Whether or not there is a causal relationship between two variables.

B. How accurately the measurements represent the underlying concepts.

C. Whether or not the findings are relevant to the participant’s everyday life.

D. The extent to which the researcher and/or sponsor believe that the project is worthwhile.

E. All of the above.

ANSWER: A

14. The term “external validity” is concerned with:

A. The question of whether the results of a study can be generalized.

B. Whether the research question is judged to be a good research question by those reading or reviewing the study.

C. The question of whether or not the study’s findings are applicable to people’s everyday life.

- D. An ambiguous concept that is open to interpretation.
- E. All of the above

ANSWER: A

15. What is a cross-sectional design?

- A. A comparison of two or more variables longitudinally.
- B. A design that is devised when the research needs basic pilot data.
- C. The collection of data from more than once case at one moment in time.
- D. Research into one particular segment of a population, e.g., the middle class.
- E. All of the above.

ANSWER: C

16. Which of the following should be considered when preparing a research plan?

- A. The sample population and sampling strategy.
- B. Ethical issues that may arise.
- C. Access to the research setting
- D. Refining the research question
- E. All of the above

ANSWER: E

17. The _____ is the group of individuals from which the research recruits their study population.

- A. Sample size
- B. Sampling population
- C. Source population
- D. Target population
- E. Total population

ANSWER: B

18. You are performing a study of hospitals in East Africa that perform a rare nerve surgery of the foot. In order to obtain the study population, you have placed the names of all of the hospitals that perform this procedure on strips of paper and placed them in a box. You then pull out ten of the strips of paper from the box. This type of sampling method is known as which of the following?

- A. Non-random sampling
- B. Quota sampling
- C. Random sampling
- D. Stratification sampling
- E. Sample of convenience

ANSWER: C

19. A large company surveys 100 employees by taking random samples of 10 managers and 90 non-managerial employees. What type of sampling is this?

- A. Cluster sampling
- B. Sample of convenience
- C. Simple random sampling
- D. Stratified sampling

E. Systematic sampling

ANSWER: D

21. A physiotherapy clinic manager wants to ensure the new patient intake forms are being filled in correctly and completely over the past year. There 8 boxes of 100 patient files each. The manager randomly selects 2 boxes and checks every patient file. What type of sampling is this?

- A. Cluster sampling
- B. Sample of convenience
- C. Simple random sampling
- D. Stratified sampling
- E. Systematic sampling

ANSWER: A

22. Upon discharge from your outpatient clinic, you provide selected patients a website link to complete an online survey about their rehabilitation experiences. What type of sampling is this?

- A. Sample of convenience
- B. Snowball sampling
- C. Judgement sampling
- D. Voluntary response
- E. Quota sampling

ANSWER: C

23. You are interested in the functional outcomes of patients discharged after a 4-week total knee replacement rehabilitation program. You randomly select 1 of the first 10 patients to complete the program to complete a function outcome survey. After this initial patient, you recruit every 10th patient to complete the survey. What type of sampling is this?

- A. Cluster sampling
- B. Sample of convenience
- C. Simple random sampling
- D. Stratified sampling
- E. Systematic sampling

ANSWER: E

24. Sampling based on the availability and proximity of participants is called _____ sampling.

- A. Cluster sampling
- B. Sample of convenience
- C. Simple random sampling
- D. Stratified sampling
- E. Systematic sampling

ANSWER: B

25. To accurately determine the appropriate sample size for your study which of the following piece of data do you need to read the literature to identify?

- A. Alpha level – risk of type 1 error

- B. Beta level – risk of type 2 error
- C. Prior sample sizes used in a similar study
- D. Identification of the sample population
- E. Variability of the measurement variable

ANSWER: E

26. Statistical power is defined as the probability of detecting a statistically significant and clinically or practically important difference given a pre-specified sample size, if such a difference truly exists.

- A) True
- B) False

ANSWER: A

27. While there may be a statistically significant difference, this difference may or may not be clinically relevant. Of the values used to determine sample size, which of these has the greatest impact on whether or not a statistical difference is also clinically relevant?

- A. Alpha level – risk of type 1 error
- B. Beta level – risk of type 2 error
- C. Effect size of the measurement
- D. Identification of the sample population
- E. Variability of the measurement variable

ANSWER: C

28. After the completion of a study where no significant difference was found in the measured variable and it was found that the variability in the measured variable was higher than expected and therefore a larger sample size should be considered in future studies. One can use the sample size formula to recalculate sample size using the data obtained in the current study to determine the sample size required in a future study.

- A) True
- B) False

ANSWER: A

29. When critically appraising the literature, the term “best evidence” emphasizes the fact that it is the quality and not the quantity of evidence that is of primary significance.

- A) True
- B) False

ANSWER: A

30. When assessing an abstract which of the following is not a key factor to assess in this part of a research paper?

- A. Does this study address your or a related research question?
- B. Is this study’s methodology reproducible?
- C. Was this study done in a similar setting as yours?
- D. Was the study population similar to the one that you are interested in?
- E. What are the primary findings of the study?

ANSWER: B

31. When obtaining informed consent, the research must disclose any and all “risks”. “Minimal risk” is defined as one that an individuals will ordinarily encounter in daily life or the performance of routine physical and psychological testing.

- A) True
- B) False

ANSWER: A

32. Which of the following is not considered a primary barrier for the participation of physiotherapists in research?

- A. Accessibility to tools and resources
- B. Adequate compensation
- C. Limited time
- D. Workload expectations
- E. All of the above are considered primary barriers

ANSWER: B

33. While a growing body of evidence is important to the practice of evidence-based medicine, it is the analysis provided my systematic reviews and meta-analysis that provided the need data to make the determinations of what is best practice.

- A) True
- B) False

ANSWER: A

34. When using a qualitative research methodology to study the quality of life of a given population, which of the following approaches would be indicated?

- A. Case-study
- B. Ethnographical
- C. Narrative
- D. Phenomenology
- E. None of the above would be appropriate

ANSWER: D

35. Descriptive research designs can be prospective or retrospective and the research has little if any control over the variables being assessed.

- A) True
- B) False

ANSWER: A

36. When using an experimental approach to investigate the relationship between stressful work environments and heart disease, the correlational research design is the design of choice.

- A) True
- B) False

ANSWER: B

37. Feasibility or pilot studies that are seeking to determine feasibility are often carried out using an experimental design model.

- A) True

B) False

ANSWER: A

38. Data that is collected from a patient's chart/records is deemed to be _____ data.

- A. Primary
- B. Secondary
- C. Structured
- D. Tertiary
- E. Unstructured

ANSWER: B

39. Data collected when utilizing a cohort research design may come from primary and/or secondary data sources.

- A) True
- B) False

ANSWER: A

40. Data collected when using any form of experimental design must come from a primary source.

- A) True
- B) False

ANSWER: B

41. Data collected using qualitative designs can come from primary and/or secondary data sources.

- A) True
- B) False

ANSWER: B

42. A study that follows a "like" group of individuals for a period of time to determine who does or does not develop the outcome of interest (e.g., group of otherwise healthy retired teachers) such as the development of heart disease is an example of which of the following research designs.

- A. Case-Control
- B. Cohort
- C. Correlation
- D. Cross-sectional
- E. Interventional

ANSWER: B

43. If you wanted to gain an in-depth understanding of human behavior and the reasons that govern human behavior, you would use a _____ approach.

- A. Qualitative
- B. Quantitative
- C. Experimental
- D. Non-experimental

ANSWER: A

44. It is critical that qualitative studies be replicated to avoid bias, to enhance the precision of the results and to verify the conclusions.

- A) True
- B) False

ANSWER: B

45. A measurement scale where the “numbers” used are categories and have no inherent rank is called a _____ scale.

- A. Categorical
- B. Interval
- C. Nominal
- D. Ordinal
- E. Ratio

ANSWER: C

46. A measurement scale where the “numbers” are ordered/ranked, but the actual value is not meaningful is called a _____ scale.

- A. Categorical
- B. Interval
- C. Nominal
- D. Ordinal
- E. Ratio

ANSWER: D

47. A measurement scale where the “numbers are ordered, the actual value including “0” is meaningful is called a _____ scale.

- A. Categorical
- B. Interval
- C. Nominal
- D. Ordinal
- E. Ratio

ANSWER: E

48. The scale that is often used to measure respondents' attitudes by asking the extent to which they agree or disagree with a particular question or statement is called a _____ scale.

- A. Likert's
- B. Q-sort
- C. Paired comparison
- D. Semantic differential
- E. Stapel's

ANSWER: A

49. Which of the following scales incorporate a neutral option by their inherent design?

- A. Likert's
- B. Q-sort
- C. Paired comparison
- D. Semantic differential

E. Stapel's

ANSWER: E

50. What is the potential problem with the following survey question? "What kind of house do you live in?"

- A. Ambiguous meaning
- B. Faulty assumption
- C. Double negative
- D. Leading answer
- E. Two-in-one

ANSWER: A

51. What is the potential problem with the following survey question? "Do you exercise at least 3 times per week and eat a balance of fruits and vegetables?"

- A. Ambiguous meaning
- B. Faulty assumption
- C. Double negative
- D. Leading answer
- E. Two-in-one

ANSWER: E

52. Which of the following describes the following definition of bias? "Different memories of past events that cannot be corroborated".

- A. Allocation bias
- B. Ascertainment bias
- C. Hawthorne effect
- D. Misclassification bias
- E. Recall bias

ANSWER: E

53. Which of the following describes the following definition of bias? "Participants change their behaviour because they know they are being observed".

- A. Allocation bias
- B. Ascertainment bias
- C. Hawthorne effect
- D. Misclassification bias
- E. Recall bias

ANSWER: C

54. Which of the following describes the following definition of bias? "When using a sample of convenience and not being representative of the population as a whole".

- A. Allocation bias
- B. Ascertainment bias
- C. Hawthorne effect
- D. Misclassification bias
- E. Recall bias

ANSWER: B

55. A measurement may be reliable but not valid.

- A. True
- B. False

ANSWER: A

56. A measurement may be valid but not reliable.

- A. True
- B. False

ANSWER: B

57. When two or more “experts” agree that a set of questions captures the relevant information regarding a specific study domain or outcome, the survey is deemed to have _____ validity.

- A. Content
- B. Construct
- C. External
- D. Face
- E. Internal

ANSWER: A

58. When experts and users agree that the survey will be easy for the participants to understand and complete correctly, the survey is deemed to have _____ validity.

- A. Content
- B. Construct
- C. External
- D. Face
- E. Internal

ANSWER: D

59. When a survey is given and can demonstrate that consistent answers are given to similar questions, the survey is deemed to have _____.

- A. Construct validity
- B. Discriminant validity
- C. External consistency
- D. Face validity
- E. Internal consistency

ANSWER: E

60. Of the primary purposes of research, the goal to determine if an intervention is working is called _____ research.

- A. Action
- B. Applied
- C. Basic
- D. Formative
- E. Summative

ANSWER: E

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