

Midterm Research Methods - Past Paper Questions

1. In which of the following study designs does a patient NOT necessarily have the risk factor in question?

A. Ecological study*

B. Phase I clinical trial

C. Case series

2. Which of the following statements regarding Good Clinical Practice (GCP) guidelines is INCORRECT?

A. Define the roles and responsibilities of sponsors, research investigators, and research assistants.

B. Ensures safety for newly formed compounds.

C. Freely given informed consent should NOT be taken from every participant.*

3. In the PICO(S) framework for formulating a research question, what does the "S" stand for?

A. Study design*

B. Sample size

C. Secondary outcomes

D. Significance level

4. Which of the following study designs can ONLY be conducted retrospectively?

A. Cohort study

B. Controlled clinical trial

C. Cross-sectional survey

D. Case series*

E. Case report

5. Which study phase must be completed before a drug can be tested on patients who actually have the disease of interest?

A. Phase I*

B. Phase II

C. Phase III

D. Phase IV

6. In which clinical study phase is the exact population of the drug chosen?

A. Phase I

B. Phase II*

C. Phase III

D. Phase IV

7. Which of the following statements regarding Institutional Review Boards (IRBs) is INCORRECT?

A. The chairperson must be selected from individuals with high expertise within the home institution.*

B. The board should include a legal expert or judge.

C. The board must include at least one non-scientific member.

8. When questions on a questionnaire are positively correlated to others that measure the same construct, and not related to ones of another construct, the questionnaire demonstrates high:

A. Internal consistency

B. Construct validity*

9. A delay in a patient's clinical diagnosis can be calculated from medical records by evaluating which category of data?

- A. Personal domain
- B. Exposure domain
- C. Outcome domain
- D. Investigation history***
- E. Drug history

10. Stress and depression rates are high among medical students in Jordan. To assess whether social media addiction acts as a risk factor or not, which study design should be used?

- A. Cross-sectional study***
- B. Cohort study
- C. Case-control study

11. A research team conducted a study to assess a health-related outcome among students in Jordan. The research design followed these steps: Jordan was divided into 12 governorates; in Irbid, the area was stratified into urban and rural sectors; in the eastern rural sector, 10 villages were selected out of 30. Which of the following best describes the sampling technique used to select the 10 villages?

- A. Convenience sampling
- B. Cluster sampling***
- C. Random sampling
- D. Systematic sampling

12. A research team conducted a study to assess a health-related outcome among students in Jordan. The research design followed these steps: Jordan was divided into 12 governorates. Which of the following best describes the initial sampling step?

- A. Stratified sampling***

- B. Cluster sampling
- C. Random sampling
- D. Systematic sampling

13. Bronchial asthma is a common chronic disease in Jordan. To assess the burden of the disease in the age group of 5–18 years old, which study design is best?

- A. Cross-sectional study***
- B. Cohort study
- C. Case-control study
- D. Randomized controlled trial

14. A research team conducted a study to assess a health-related outcome among students in Jordan. The research design followed these steps: Jordan was divided into 12 governorates; in Irbid, the area was stratified into urban and rural sectors; in the eastern rural sector, 10 villages were selected out of 30; from these villages, 3 schools were randomly selected from a total of 20 schools. Finally, on a Sunday at 7:50 AM, 200 students who arrived were recruited until exactly 100 males and 100 females were reached. Which of the following best describes the final sampling technique used?

- A. Quota sampling***
- B. Cluster sampling
- C. Random sampling
- D. Systematic sampling

15. A research team conducted a study to assess a health-related outcome among students in Jordan. The research design followed these steps: Jordan was divided into 12 governorates; in Irbid, the area was stratified into urban and rural sectors; in the eastern rural sector, 10 villages were selected out of 30; from these villages, 3 schools were randomly selected from a total of 20 schools. Which of the following best describes the sampling technique used to select the schools?

- A. Convenience sampling
- B. Cluster sampling***

- C. Random sampling
- D. Systematic sampling

16. A research team conducted a study to assess a health-related outcome among students in Jordan. The research design followed these steps: Jordan was divided into 12 governorates; in Irbid, the area was stratified into urban and rural sectors; in the eastern rural sector, 10 villages were selected out of 30; from these villages, 3 schools were randomly selected from a total of 20 schools; finally, on a Sunday at 7:50 AM, 200 students who arrived at convenience were recruited. Which of the following best describes this final step?

- A. Convenience sampling***
- B. Cluster sampling
- C. Random sampling
- D. Systematic sampling

17. Consider a questionnaire item for hypertension: "Do you take your medication as the doctor said? And follow a low fat diet?" with options ranging from (All the time, Sometimes, etc.). What is the best methodological correction?

- A. Delete the question
- B. Edit the question***
- C. Edit the question and answer
- D. Edit the answer

18. Regarding electronic database search strategies, which of the following statements is INCORRECT?

- A. "And" broadens the total number of search results.***
- B. "Or" is used for similar terms.
- C. "Or" is used for synonymous topics.
- D. "And" is used to combine different topics.
- E. "Not" is used to exclude something.

19. Bronchial asthma is a common chronic disease in Jordan. To assess the burden of the disease in the age group of 5–18 years old, we measure:

- A. Incidence rate
- B. Prevalence***
- C. Mortality rate
- D. Case-fatality ratio

20. In the discussion section of a clinical manuscript, what is typically written immediately before the final concluding paragraph?

- A. Limitation***
- B. Recommendations
- C. Primary outcomes
- D. Secondary outcomes
- E. Compare with other literature

21. The baseline incidence of nasopharyngeal cancer was 250 cases in Country X (Population: 15 million). To study if working as a carpenter is a risk factor, we conduct a:

- A. Cohort study
- B. Case-control study***

22. The baseline incidence of nasopharyngeal cancer was 250 cases in Country X (Population: 15 million). To study if tobacco is a risk factor, we conduct a:

- A. Cohort study***
- B. Case-control study

Medical Research Final Exam - Refined Question Bank

Document Type: Refined MCQs (5-Option Format)

Focus: Research Paradigms, Qualitative Methodologies, Ethics, and Trustworthiness Measures.

Section 1: Exam Questions

Q1. Participant Observation

A medical sociologist is conducting a qualitative study to understand the workplace culture and burnout among resident physicians. The researcher joins the residency team, attends rounds, and works alongside the residents while observing their interactions. Which of the following statements best defines the core dynamic of **participant observation**?

- **A) The researcher actively participates in the daily activities of the group being observed.**
- B) The participants are trained to observe and record the behavior of the researcher.
- C) The research supervisor directly participates in the study to observe the primary researcher.
- D) The researcher remains strictly detached and observes the participants through a one-way mirror.
- E) The participants alter their behavior because they are aware they are being monitored.

Q2. Ethical Dilemmas in Action

During a semi-structured interview regarding a sensitive medical error, an unexpected ethical dilemma arises regarding patient confidentiality that was not covered in the original institutional review board (IRB) protocol. The interviewer must immediately navigate and resolve this dilemma during the interaction itself. This approach to ethics is best described as:

- A) Procedural ethics
- **B) Situational ethics**
- C) Covert ethics
- D) Macroethics
- E) Normative ethics

Q3. Case Study vs. Ethnography

A research committee is evaluating two qualitative proposals: one utilizing a case study design and the other utilizing an ethnographic design. Which of the following highlights a primary distinction between a **case study** and an **ethnographic study**?

- **A) A case study explores a bounded system, whereas an ethnography focuses on shared cultural patterns of a group.**
- B) A case study requires statistical generalizability, whereas an ethnography relies purely on quantitative surveys.
- C) A case study must involve multiple geographic sites, whereas an ethnography is limited to a single individual.
- D) A case study is exclusively retrospective, whereas an ethnography is strictly longitudinal and experimental.
- E) A case study focuses on historical archival data, whereas an ethnography completely avoids participant interaction.

Q4. Narrative Research and Data Synthesis

A researcher conducting a narrative inquiry collects disjointed life stories, personal anecdotes, and diaries from several patients living with a rare genetic disorder. The researcher then synthesizes and reshapes these individual accounts into a cohesive, chronological narrative arc. This process of configuring data into a unified story is known as:

- A) Horizontalization
- **B) Emplotment**
- C) Thematic coding
- D) Member checking
- E) Theoretical sampling

Q5. Choosing Qualitative Methodology

A qualitative study aims to explore the deep, subjective, lived emotional experiences and psychological feelings of patients who faced chronic kidney failure after a renal transplant failed. Which of the following qualitative study designs is most appropriate for this research objective?

- A) Grounded theory
- **B) Phenomenological study**
- C) Ethnographic study
- D) Cross-sectional survey
- E) Retrospective cohort study

Q6. Positivist View of Reality

In the context of research paradigms, the philosophical stance of **positivism** asserts that the nature of reality (ontology) is:

- A) Socially constructed through human interactions and language.
- **B) Fixed, objective, and detached from the observer.**
- C) Subjective and entirely dependent on individual interpretation.
- D) Multiple, fluid, and constantly changing based on context.
- E) Negotiated practically based on what works best to solve a problem.

Q7. Measures of Rigor

In qualitative research, investigators utilize **thick description**—providing rich, detailed, and highly contextualized accounts of the participants and setting. Thick description primarily serves to enhance which measure of trustworthiness/rigor?

- A) Credibility (Internal validity)
- **B) Transferability (Applicability/External validity)**
- C) Dependability (Reliability)
- D) Confirmability (Objectivity)
- E) Statistical power

Q8. Non-Probability Sampling Techniques

A researcher studying a hidden or hard-to-reach population (such as intravenous drug users with hepatitis C) asks initial study participants to refer or recruit their peers and colleagues into the study. This sampling method is classified as:

- **A) Snowball sampling**
- B) Simple random sampling
- C) Stratified random sampling
- D) Convenience sampling
- E) Critical case sampling

Q9. Qualitative Perspectives

A researcher analyzing the healthcare-seeking behaviors of a rural community focuses heavily on capturing and understanding the participants' experiences and cultural meanings from their own internal point of view, using the community's own terms. This perspective is known as the:

- A) Etic perspective
- **B) Emic perspective**
- C) Positivist perspective

- D) Objective perspective
- E) Macro-level perspective

Q10. Pragmatic Paradigm

A clinical investigator designs a mixed-methods study to evaluate a new triage system. They choose tools and methods based entirely on what best answers the specific research question, combining both qualitative interviews and quantitative metrics without worrying about underlying philosophical purism. Which paradigm guides this approach?

- A) Positivism
- B) Interpretivism
- C) Post-positivism
- **D) Pragmatism**
- E) Constructivism

Q11. Philosophical Foundations of Research

During a thesis defense, a medical student argues about how we define what is real and whether reality is a single objective truth or multiple subjective constructions. The advisor notes, *"You are discussing the philosophical study of the nature of reality and how it is shaped."* Which term matches this definition?

- A) Epistemology
- **B) Ontology**
- C) Methodology
- D) Axiology
- E) Paradigm

Q12. Paradigm for Clinical Trials

An investigator plans to conduct a double-blind, randomized controlled trial (RCT) to evaluate the efficacy of a novel antihypertensive drug compared to a placebo. To measure objective, quantifiable physiological outcomes, which research paradigm is most suitable?

- A) Pragmatism
- B) Interpretivism
- **C) Positivism**
- D) Constructivism
- E) Critical Theory

Q13. Ethical Complexity in Observation

When designing an observational study within an emergency department, which of the following

observational methods is generally considered the most ethically complex and difficult to justify to an institutional review board (IRB)?

- A) Overt participation observation
- **B) Covert non-participant observation**
- C) Structured overt observation
- D) Direct non-participant overt observation
- E) Focus group discussion

Q14. Behavioral Changes in Observation

A research team notes that when a hospital ward's staff members realize they are actively being monitored by external quality-control observers, they temporarily alter their clinical behaviors and strictly adhere to protocols, a phenomenon known as the:

- A) Pygmalion effect
- B) Placebo effect
- **C) Hawthorne effect**
- D) Selection bias
- E) Recall bias

Q15. Diverging Data Sources

A study evaluates hand-hygiene compliance among ICU nurses. Self-reported surveys filled out by the nurses demonstrate a 95% compliance rate. However, unannounced direct observations reveal a compliance rate of only 40%. This discrepancy is most likely driven by:

- A) Selection bias
- **B) Social desirability bias**
- C) Confounding bias
- D) Attrition bias
- E) Recall bias

Q16. Phenomenological Data Analysis

During data analysis in a phenomenological study, the researcher treats all statements and expressions from the participants' transcripts as having equal weight and value, avoiding any premature hierarchical scaling. This specific step is called:

- A) Cluster analysis
- B) Bracketing
- **C) Horizontalization**
- D) Member checking
- E) Axial coding

Q17. Types of Case Studies

A public health agency conducts a small-scale case study focused on a single clinic prior to launching a massive, multi-center nationwide investigation into vaccine distribution infrastructure. This preliminary case study is known as an:

- A) Explanatory case study
- **B) Exploratory case study**
- C) Descriptive case study
- D) Intrinsic case study
- E) Evaluative case study

Q18. Data Collection Limits in Grounded Theory

In qualitative research, the criterion by which a researcher stops gathering new data because the newly acquired information repeats what has already been heard and no longer yields new conceptual insights or properties for the categories is called:

- A) Overextension
- **B) Data saturation**
- C) Consensus
- D) Triangulation
- E) Reflexivity

Q19. Mixed-Methods Design for Marginalized Populations

A research team plans a mixed-methods study to investigate the structural barriers to healthcare access among refugees and marginalized undocumented workers, aiming to use the findings to advocate for policy reform. Which mixed-methods design is most appropriate?

- A) Convergent parallel design
- B) Explanatory sequential design
- C) Exploratory sequential design
- **D) Transformative design**
- E) Multiphase design

Q20. Project Management Tools

A primary investigator includes a **Gantt chart** in their medical research grant proposal. This visual tool is primarily utilized for which of the following purposes?

- A) Organizing qualitative codes into themes
- B) Outlining the budget and expenditure tracking
- **C) Establishing and tracking the project timeline and milestones**

- D) Documenting the ethical approval workflow
- E) Performing power calculations and sample size estimations

Q21. Phenomenological Reduction

When a qualitative researcher intentionally identifies, suspends, and sets aside their own personal preconceptions, biases, and prior knowledge about a phenomenon to see it clearly from the participant's view, they are practicing:

- **A) Bracketing (Epoché)**
- B) Triangulation
- C) Audit trailing
- D) Horizontalization
- E) Member checking

Q22. Trustworthiness in Qualitative Design

A qualitative researcher spends an extended period of time (six months) immersed within an oncology ward to build trust, learn the culture, and minimize distortions in data collection. This strategy of **prolonged engagement** directly enhances which measure of rigor?

- A) Objectivity
- B) Dependability
- **C) Credibility**
- D) Transferability
- E) Confirmability