

Chapter 02: Introduction to Quantitative Research

Grove: Understanding Nursing Research, 7th Edition

MULTIPLE CHOICE

1. A researcher conducts a study which outlines the daily habits of women who are overweight. This study represents what type of research?
 - a. Correlational
 - b. Descriptive
 - c. Experimental
 - d. Quasi-experimental

ANS: B

Descriptive research is the exploration and description of phenomena in real-life situations. Correlational research involves the systematic investigation of relationships between or among variables. Experimental research is an objective, systematic, highly controlled investigation conducted for the purpose of predicting and controlling phenomena. The purpose of **quasi-experimental research** is to examine causal relationships or determine the effect of one variable on another. Thus these studies involve implementing a treatment or intervention and examining the effects of this intervention using selected methods of measurement.

DIF: Cognitive level: Applying (Application)

2. The researcher wants to learn whether there is a relationship between parental education and emergency room use among children who have asthma. Which type of research study will this researcher use?
 - a. Basic
 - b. Correlational
 - c. Historical
 - d. Phenomenological

ANS: B

Correlational research involves the systematic investigation of relationships between or among variables. Basic research is scientific investigation that involves the pursuit of “knowledge for knowledge’s sake.” Historical research is a type of qualitative research. Phenomenological research is a type of qualitative research.

DIF: Cognitive level: Applying (Application)

3. The nurse evaluates a research study that examines the relationship between computer and television screen time and obesity. A correlational analysis reveals a correlation of +0.95. What can the nurse conclude about the relationship between these two variables?
 - a. An increase in screen time causes obesity.
 - b. An increase in obesity leads to increased screen time.
 - c. Screen time and obesity vary in opposite directions.
 - d. Screen time and obesity vary together.

ANS: D

A positive correlation between variables indicates that the variables vary together. Variables that vary in opposite directions will have a negative correlation. Descriptive research is the exploration of phenomena in real-life situations. Correlational studies do not indicate cause, so an increase in screen time or an increase in obesity does not cause or lead to an increase in the other.

DIF: Cognitive level: Analyzing (Analysis)

4. The overall plan developed by the researcher to obtain answers to the questions being studied is called
- analysis of data.
 - operationally defining the variables.
 - problem statement.
 - research design.

ANS: D

Research design is a blueprint for the conduct of a study that maximizes control over factors that could interfere with the study's desired outcome. Data analysis reduces, organizes, and gives meaning to the data. Researchers develop an operational definition so that the variables can be measured or an intervention implemented in a study. The problem statement in a study usually identifies an area of concern for a particular population that requires investigations.

DIF: Cognitive level: Understanding (Comprehension)

5. In which type of research does the researcher seek to examine causal relationships among variables without being able to manipulate the variables?
- Descriptive
 - Correlational
 - Experimental
 - Quasi-experimental

ANS: D

Quasi-experimental studies have less control than experimental studies, but they do exhibit some degree of control. Descriptive research is the exploration of phenomena in real-life situations. Correlational research investigates the relationship between or among variables but does not attribute cause. Experimental design is considered the most powerful quantitative design because of the rigorous control of variables.

DIF: Cognitive level: Understanding (Comprehension)

6. The nurse participates in data collection for a clinical drug trial in which subjects are randomly assigned to either a treatment or a placebo group to measure the effects of the drug on a specific outcome. This is which type of study?
- Correlational
 - Descriptive
 - Experimental
 - Quasi-experimental

ANS: C

Experimental design involves control of variables and random assignment of subjects so that effects of variables on specific outcomes can be measured. Correlational research investigates the relationship between or among variables but does not attribute cause. Descriptive research is the exploration of phenomena in real-life situations. Quasi-experimental studies have less control than experimental studies, but they do exhibit some degree of control.

DIF: Cognitive level: Applying (Application)

7. A researcher studies the effect of asthma action plans on frequency of emergency department visits for asthma-related symptoms. The study would be described as
- applied research.
 - basic research.
 - descriptive research.
 - phenomenological research.

ANS: A

Applied research involves research that is directly applicable to clinical practice. Basic research is scientific investigation that involves the pursuit of “knowledge for knowledge’s sake.” Descriptive research is the exploration of phenomena in real-life situations. Phenomenological research would not investigate this type of research question. Phenomenological research asks, “what is the lived experience of the person in this situation?”

DIF: Cognitive level: Applying (Application)

8. Basic research seeks to
- directly influence clinical practice.
 - generate knowledge for knowledge’s sake.
 - predict or control outcomes of variables.
 - validate or test theoretical frameworks.

ANS: B

Basic research is more likely to be found in a laboratory setting and generates knowledge for knowledge’s sake. It may be used as the foundation for other research. Applied research is used to solve problems, make decisions, or predict or control outcomes in real-life practice situations. Experimental research is conducted to be able to predict or control outcomes. Grounded theory research is used to validate theoretical frameworks.

DIF: Cognitive level: Analyzing (Analysis)

9. When developing a study, a researcher establishes rules for measurement of independent and dependent variables to minimize the possibility of error. This is an example of
- control.
 - manipulation.
 - precision.
 - rigor.

ANS: A

Control involves the imposing of rules by the researcher to decrease the possibility of error and thus increase the probability that the study's findings are an accurate reflection of reality. Manipulation is when the researcher makes changes in the treatment received by the subjects. Precision encompasses accuracy, detail, and order and is evident in the concise statement of the research purpose. Rigor is the discipline, attention to detail, and precision necessary when striving for excellence in research.

DIF: Cognitive level: Understanding (Comprehension)

10. In which type of research study does the researcher explore and describe phenomena in real-life situations?
- Correlational
 - Descriptive
 - Experimental
 - Quasi-experimental

ANS: B

Descriptive research is the exploration of phenomena in real-life situations. Correlational research investigates the relationship between or among variables but does not attribute cause. Experimental design involves control of variables and random assignment of subjects so that effects of variables on specific outcomes can be measured.

Quasi-experimental studies have less control than experimental studies, but they do exhibit some degree of control.

DIF: Cognitive level: Analyzing (Analysis)

11. In which type of research study does the researcher have the most control?
- Correlational
 - Descriptive
 - Experimental
 - Quasi-experimental

ANS: C

Experimental design involves control of variables and random assignment of subjects so that effects of variables on specific outcomes can be measured. Correlational research investigates the relationship between or among variables but does not attribute cause.

Descriptive research is the exploration of phenomena in real-life situations.

Quasi-experimental studies have less control than experimental studies, but they do exhibit some degree of control.

DIF: Cognitive level: Analyzing (Analysis)

12. A researcher designs a study to evaluate stress and anxiety associated with breastfeeding in which data collection takes place in the homes of mothers with premature newborns after discharge home from the NIC. This would be an example of which type of research setting?
- Highly controlled, field
 - Highly controlled, laboratory
 - Natural, field
 - Partially controlled, laboratory

ANS: C

The setting describes where the research and data collection occur. A natural setting, or field setting, is an uncontrolled, real-life situation or environment, such as the home. In a natural setting, there is relatively little control over the setting and the variables associated with the setting. There are three common settings for conducting research: natural, partially controlled, and highly controlled. A highly controlled setting would involve experimental control of an independent variable, which this study does not do. This is a field study, with data collection occurring in patients' homes and not in a laboratory. A natural setting, or field setting, is an uncontrolled, real-life situation or environment. This is a field study, with data collection occurring in patients' homes and not in a laboratory.

DIF: Cognitive level: Applying (Application)

13. When conducting a research study using a convenience sample of all second-grade students from two classrooms in a nearby school, the nurse researcher may increase the sample control by
- assigning one classroom to the experimental group and the other classroom to the control group.
 - exposing all subjects to the treatment variable and then comparing the outcome data to pretreatment data.
 - randomly assigning students from both classrooms to either the experimental group or the control group.
 - using these subjects as treatment subjects and comparing outcomes to a group of subjects from a similar study.

ANS: C

Randomly assigning subjects to either a treatment group or a control group improves sample control and decreases bias. Even when convenience sampling is used, subjects may be randomly assigned to groups. Assigning one classroom to one group and the other classroom to the other group is less effective than random sampling. Pre- and post-treatment comparison may be used when random assignment is not possible. Comparing a treatment group to a group in another study does not control the treatment variables because of variations between two studies.

DIF: Cognitive level: Analyzing (Analysis)

14. A nurse is assisting with data collection for a study measuring the effects of a sleep aid medication on oxygen saturations. Subjects will sleep in a darkened room in a sleep lab while participating. Which type of research setting is this?
- Field
 - Highly controlled
 - Natural
 - Partially controlled

ANS: B

A highly controlled setting is one in which the influence of extraneous variables is greatly reduced. Examples of such a setting would include laboratories, research or experimental centers, and test units in hospitals. Field settings are uncontrolled, real-life situations or environments. Natural settings are uncontrolled, real-life situations or environments. Partially controlled settings are environments that the researcher has manipulated or modified in some way.

DIF: Cognitive level: Applying (Application)

15. A nurse researcher explains the relationships between research processes and the nursing process to a group of graduate-level nursing students. Which statement by a nursing student indicates the need for further teaching?
- “Nursing research leads to evidence-based nursing practice guidelines.”
 - “Nursing research has a broader focus than the nursing process.”
 - “The nursing process helps to identify potential nursing research problems.”
 - “The nursing process requires rigorous application of research methods.”

ANS: D

The nursing process may be based on research, but does not require the rigorous application of research methods. Nursing research may be used to develop evidence-based nursing practice guidelines. Nursing research has a broader focus than the nursing process and is generally population based rather than individual based. The nursing process can help to identify nursing research problems.

DIF: Cognitive level: Remembering (Knowledge)

16. Research subjects in a study of body image after mastectomy will complete a questionnaire about body image after surgery. Which assumption would the researcher likely make when conducting this study?
- All mastectomy patients are likely to be negatively affected by the surgery.
 - Body image and appearance are important to survivors of breast cancer.
 - Subjects will be able to describe a personal awareness of body image.
 - Subjects will complete every item on the questionnaire.

ANS: C

Assumptions are statements taken for granted or considered true, even though they have not been scientifically tested. The researcher will assume that subjects have an awareness of this concept. The researcher does not indicate that negative effects of mastectomy are an assumption of the study. The results of the study may indicate whether this is true or not. The researcher does not indicate that the importance of body image and appearance is an assumption of the study. The results of the study may indicate whether this is true or not. The researcher does not indicate that this is an assumption of the study. It is undoubtedly hoped for to get complete data.

DIF: Cognitive level: Understanding (Comprehension)

17. Statements that will be scientifically tested as part of a research study are called
- assumptions.
 - hypotheses.
 - limitations.
 - variables.

ANS: B

Hypotheses are the researcher's best guess as to the outcome of the study. Assumptions are statements that are taken for granted or considered true, even though they have not been scientifically tested. Limitations are factors in the study that cannot be controlled or manipulated, but might have an influence on the outcome. Variables are the factors influencing the hypotheses that the researcher wants to investigate.

DIF: Cognitive level: Remembering (Knowledge)

18. A study that analyzes the effect of exercise on diabetes control among Native-American children with type II diabetes would most credibly be generalizable to which population?
- African-Americans with type II diabetes
 - Native-American children with type I diabetes
 - Children with type II diabetes
 - All people with type II diabetes

ANS: B

Generalization is the extension of the implications of the research findings from the sample to a larger population. The population represented in the study is Native-American children, so the results of this study may be generalized to this population. The population that the sample represents does not include all African-Americans with type II diabetes. The population that the sample represents does not include all children with type II diabetes. The population that the sample represents does not include all patients with type II diabetes.

DIF: Cognitive level: Understanding (Comprehension)

19. To evaluate data collection methodology prior to conducting a large-scale study, a researcher might carry out a smaller-scale study. This smaller-scale study is known as a/an
- abstract.
 - exploratory design.
 - pilot study.
 - proposal.

ANS: C

A pilot study is frequently defined as a smaller version of a proposed study conducted to refine the methodology. The abstract is a synopsis of the study found at the beginning of a research report. Exploratory design is used when the total situation is unclear. A proposal is a formal request to conduct a study; it can be submitted to obtain funds or get feedback on the study's methodology.

DIF: Cognitive level: Understanding (Comprehension)

20. The nurse researcher is developing a study to examine the effects of asthma education on missed school days among grade school children. When defining the research problem in the research proposal, the nurse will discuss
- the proposed methodologies for data collection.
 - statistics about the number of school days missed by children with asthma.
 - the costs and types of various medications to treat asthma symptoms.
 - the need for future studies to examine asthma care for this population.

ANS: B

When describing the research problem, the researcher identifies an area of concern for a population. The discussion about proposed methodologies is part of the study design. The costs and types of medications would be included in background information, but this discussion does not identify the research problem. The discussion about the need for further studies is part of the discussion and summary.

DIF: Cognitive level: Applying (Application)

21. Which portion of a research report would the nurse initially read to get an overview of the study?
- Abstract
 - Conclusion
 - Framework
 - Methodology

ANS: A

The research report usually begins with an abstract: a clear, concise summary of a study, including the research problem and purpose, methodology, and conclusions. The reader can gain an understanding of the study by reading the abstract. Conclusions are presented at the end of the report and describe the findings based on the data collection and data analysis. The framework is present later in the study report and tells about the foundation of the study. The methodology is in the middle part of the report and describes the study methods, tools, data collection, and analysis.

DIF: Cognitive level: Applying (Application)

22. The section of a research report that describes the purpose of a research study will include
- what relationships among key variables will be examined.
 - which various theories provide context for the research problem.
 - what is currently understood about the research problem.
 - why the research is necessary to help close a gap in knowledge.

ANS: A

The research purpose is a statement generated from the research problem identifying the specific focus of goal of the study. The theoretical framework identifies how theories provide context for the research question. The literature review identifies what is currently known about the research problem. The research problem is a statement about why the research is necessary to close gaps in knowledge.

DIF: Cognitive level: Analyzing (Analysis)

23. A researcher conducts a review of relevant literature prior to developing a research study to
- avoid duplication of research ideas.
 - determine which theoretical framework is best adapted to the research problem.
 - determine which type of study would be most cost-effective.
 - identify what is known and unknown about a problem.

ANS: D

The literature review is conducted to identify what is already known about a research problem and to document why a research study needs to be conducted. The literature review identifies what is known and may describe past studies, but is not necessarily performed to avoid duplication of research ideas since many studies are replicated to confirm results. The literature review does not evaluate the theoretical framework. The literature review does not determine cost-effectiveness of a study.

DIF: Cognitive level: Applying (Application)

24. In a qualitative study to describe stages of grief, the researcher asks parents who have lost a child to cancer to describe their experiences with grief at specific time intervals after their children's deaths. Which assumption will the researcher make?
- Study subjects have knowledge about theoretical concepts about grief.
 - Study subjects understand the concept of grief.
 - Subjects will be able to articulate their feelings coherently.
 - Subjects will be available for data collection at specific time intervals.

ANS: B

A researcher may assume that study subjects will understand the concept of grief. Subjects who know what grief is do not necessarily understand theoretical concepts about grief. Although it is desired that subjects will be able to articulate their feelings or be available at specific intervals, there is no assumption that they will be able to do so. Subjects may not always be available at specific intervals.

DIF: Cognitive level: Understanding (Comprehension)

25. How is theory tested in quantitative research?
- Assumptions about the theoretical framework are evaluated.
 - Concepts become more clearly defined as they are tested.
 - Relationships among concepts are tested.
 - The entire theory is proven or disproven.

ANS: C

In quantitative research, relational statements between two or more concepts are tested, not the entire theory. Assumptions are statements that are taken for granted and are not tested in research. Concepts are defined prior to initiating research. Quantitative studies do not prove or disprove an entire theory, just relationships among key concepts.

DIF: Cognitive level: Applying (Application)

26. An operational definition of a variable or concept ensures that the variable or concept will be
- given theoretical meaning.
 - linked to other variables or concepts.
 - measured or manipulated.
 - understood in context of a theoretical framework.

ANS: C

An operational definition of a concept allows the concept to be measured or manipulated. A conceptual definition of a concept gives that concept theoretical meaning. The research question links concepts and variables to other concepts and variables. The operational definition does not necessarily give meaning to a concept in the context of a theoretical framework.

DIF: Cognitive level: Analyzing (Analysis)

27. In a research proposal, when describing a research design, the researcher would include
- discussion of a theoretical framework.
 - evaluation of the researcher's expertise.
 - methods for measurement of variables.
 - purpose of the study.

ANS: C

In the research design, the researcher will describe how variables are measured along with sampling procedures and plans for data collection and analysis. The theoretical framework is discussed in the theory section. The evaluation of the researcher's expertise is part of the discussion. The purpose of the study is discussed in the introduction and purpose section.

DIF: Cognitive level: Analyzing (Analysis)

28. Prior to initiating a large-scale research study, the researcher conducts a small-scale study using similar subjects, methods, instruments, measurements, and analysis. This is done to
- define the conceptual framework of the study.
 - determine the quality of the study components.
 - link study variables to one another.
 - provide a study design.

ANS: B

A pilot study is performed on a smaller scale to determine the quality of the study components before the study is conducted on a larger scale. The pilot is not performed to define the conceptual framework of the study. The pilot does not necessarily link study variables to one another and is not the purpose of performing a pilot study. The pilot study tests components of the study design, which has already been determined.

DIF: Cognitive level: Analyzing (Analysis)

29. The methodology portion of the research report is used to
- describe the study design.
 - discuss the implications of the study.
 - provide a theoretical framework for the study.
 - summarize the purpose, methods, and results.

ANS: A

In the methodology section, the researcher describes the study design including sampling methods, measurement of variables, data collection, and data analysis. The implications of the study are explored in the discussion section. The theoretical framework is discussed in the introduction. The summary is discussed in the conclusion.

DIF: Cognitive level: Understanding (Comprehension)

30. When the researcher describes the population of a study, the research consumer understands that this represents
- all members of the population at large.
 - all people who meet inclusion criteria for the study.
 - members of the study group and the control group.
 - subjects selected for the study based on sampling techniques.

ANS: B

The population is all people who meet inclusion criteria for the study whether they are sampled and included or not. Not all members of the population at large meet inclusion criteria and those who do not are not considered part of the population being studied. Members of the study and control group are the sample of the population selected for participation in the study. Subjects selected for the study are a representative sample of the population.

DIF: Cognitive level: Applying (Application)

31. When a researcher describes an instrument as being valid this indicates that the instrument
- accurately measures a variable.
 - consistently measures variables across studies.
 - has been described as high quality by other researchers.
 - has been routinely used in other, similar studies.

ANS: A

When an instrument is valid, it is considered to be accurate. Reliability of an instrument means that it is consistent across studies. Quality of the instrument is not defined by validity measures. Frequency of use of the instrument is not defined by validity measures.

DIF: Cognitive level: Analyzing (Analysis)

32. The level of measurement determines the type of statistical analysis that can be performed on the data. The level of measurement that describes the lowest form of measurement is
- interval.
 - ordinal.
 - nominal.
 - ratio.

ANS: C

Nominal is the lowest form of measurement, followed by ordinal, and interval. Ratio is considered the highest form of measurement.

DIF: Cognitive level: Understanding (Comprehension)

33. When noting the limitations of a research study, the nurse might make which observation?
- Abstract concepts were defined using concrete, consistent terms.
 - Findings could not be generalized to a population not included in the study.
 - The researcher included a discussion of the links between the study's variables.
 - The subjects were randomly assigned to control and experimental groups.

ANS: B

Limitations are restrictions in a study methodology or framework that may decrease the credibility and generalizability of the findings. The definition of concepts does not address the limitations of a study. The theoretical framework contains a discussion about the links between study variables. Random assignment to control and experimental groups increases the likelihood that the study's findings may be generalized to a larger population.

DIF: Cognitive level: Analyzing (Analysis)

34. The purpose of a study abstract is to
- describe the reason for conducting the study.
 - outline the theoretical framework that defines the study.
 - summarize a study concisely and capture the reader's attention.
 - summarize previous research about the study's topic.

ANS: C

An abstract is a clear, concise summary of a study which, researchers hope, will capture the reader's attention. The research purpose describes the reason for conducting the study. The theoretical framework clarifies links among variables. The literature review summarizes previous research.

DIF: Cognitive level: Understanding (Comprehension)

35. In a study about concussion recovery in high school football players, which statement would be part of the introduction?
- "The Functional Independence Measure was used to measure post-concussion symptoms."
 - "The purpose of this study was to determine average length of recovery time after a first concussion."
 - "The results of this study showed an average recovery time of 6 weeks among football players."
 - "The study included a convenience sample of high school football players in a five-county area."

ANS: B

The introduction section contains a statement about the study purpose. The methods section contains descriptions of the tools used as well as the sampling methods. The conclusion section includes statements about the results of the tests performed. The methods section contains descriptions of the tools used as well as the sampling methods.

DIF: Cognitive level: Analyzing (Analysis)

36. If a nurse wishes to critically appraise a study's sampling criteria and measurement tools, the nurse will read which part of the study report?
- Abstract
 - Introduction
 - Methods
 - Results

ANS: C

The methods section contains descriptions of the tools used as well as the sampling methods. The abstract contains a concise description of the entire study. The introduction section contains a statement about the study purpose. The results section includes statements about the results of the tests performed.

DIF: Cognitive level: Applying (Application)

37. To understand what is known and not known about a particular problem and provides a rationale for why the study needs to be conducted, the nurse would review which section of the research report?
- Introduction
 - Methods
 - Results
 - Discussion

ANS: A

The introduction section contains a statement about the study problem with background and significance, purpose statement, brief literature review, framework, and identification of the research objectives, questions, or hypotheses (if applicable). The methods section contains descriptions of the tools used as well as the sampling methods. The results section includes statements about the results of the tests performed and includes statements about the statistical significance of the differences among the variables. The discussion section includes major findings, limitations, conclusion, implications for nursing practice, and recommendations for further research.

DIF: Cognitive level: Applying (Application)

38. To learn whether there is a statistically significant difference between the control group and the experimental group in a study, the nurse would review which section of the research report?
- Introduction
 - Methods
 - Purpose
 - Results

ANS: D

The results section includes statements about the results of the tests performed and includes statements about the statistical significance of the differences among the variables. The introduction section contains a statement about the study purpose. The methods section contains descriptions of the tools used as well as the sampling methods. The purpose section contains a discussion of the reason for conducting the study.

DIF: Cognitive level: Applying (Application)

39. To help determine the relevance of a study to practice, it is recommended that the reviewer read which two sections of the study initially?
- Abstract, discussion
 - Conclusions, references
 - Literature review, purpose
 - Methods, results

ANS: A

Scanning the abstract or introduction and then the discussion will give an overview of the study's findings. The conclusions and references may be read partly or in full after skimming the abstract and discussion. The literature review and purpose may be read partly or in full after skimming the abstract and discussion. The methods and results may be read partly or in full after skimming the abstract and discussion.

DIF: Cognitive level: Applying (Application)

40. Conducting a research study in a natural setting means that the researcher
- has manipulated the environment in some way.
 - has modified the environment in some way.
 - has not manipulated or changed the environment.
 - has total control of the environment.

ANS: C

A natural setting, or field setting, is an uncontrolled, real-life situation or environment. Conducting a study in a natural setting means that the researcher does not manipulate or change the environment for the study. A partially controlled setting is an environment that the researcher has manipulated or modified in some way. A highly controlled setting is an artificially constructed environment developed for the sole purpose of conducting research.

DIF: Cognitive level: Understanding (Comprehension)

41. The author of a research report describes the research problem in order to
- conceptualize the research project.
 - guide the development of the study methods.
 - determine the goals and focus of the study.
 - identify gaps in knowledge.

ANS: D

The research problem statement identifies gaps in current knowledge about the subject. The theoretical framework serves to conceptualize the research project. The methodology section outlines the development of study methods. The research purpose identifies the goals and focus of the study.

DIF: Cognitive level: Applying (Application)

MULTIPLE RESPONSE

1. Which of the following are true statements about quantitative research? **Select all that apply.**
- Correlational research involves the use of statistics to determine relationships among variables.
 - Experimental research is the only type of quantitative research that is valid.
 - Quasi-experimental research is a useful option when controlled conditions are not possible.
 - Statistical tests are employed with quantitative research studies.

ANS: A, C, D

Correlational research involves statistical analysis of variables using correlational statistics.

Quasi-experimental research is a useful option when controlled conditions are not possible.

Statistical tests are employed with quantitative research studies. Experiments are only one form of quantitative research.

DIF: Cognitive level: Understanding (Comprehension)

2. What study design involves no intervention on the part of the researcher? **Select all that apply.**
- Correlational
 - Descriptive
 - Experimental
 - Quasi-experimental

ANS: A, B

A correlational study does not involve interventions by the researcher. A descriptive study does not involve interventions by the researcher. An experimental study involves a highly controlled intervention. A quasi-experimental study involves a controlled intervention.

DIF: Cognitive level: Analyzing (Analysis)

3. Which of the following are true statements about rigor in quantitative research? **Select all that apply.**
- A rigorously conducted quantitative study has precise measuring tools, a representative sample, and a loosely controlled study design.
 - Critically appraising the rigor of a study involves examining the reasoning used in conducting the study.
 - Logical reasoning is essential to the development of quantitative studies.
 - A rigorously conducted quantitative study has precise measuring tools, and a tightly controlled study design.
 - Precision is another aspect of rigor, which encompasses inaccuracy, detail, and order.

ANS: B, C

Critically appraising the rigor of a study involves examining the reasoning used in conducting the study. Logical reasoning, including deductive and inductive reasoning, is essential to the development of quantitative studies. A rigorously conducted quantitative study has precise measuring tools, a representative sample, and a tightly controlled study design. Another aspect of rigor is precision, which encompasses accuracy, detail, and order.

DIF: Cognitive level: Understanding (Comprehension)

4. The nurse researcher submits a proposal for an initial study to evaluate the effects of regular moderate exercise on asthma control scores in adolescents with asthma. To achieve increased control in the initial study, the researcher will do which of the following? **Select all that apply.**
- Ask subjects to keep track of time spent exercising in a journal.
 - Have subjects exercise on treadmills in the clinic three times weekly.

- c. Choose subjects classified as having moderate intermittent asthma symptoms.
- d. Limit participants to adolescent males who have asthma.

ANS: B, C, D

To control variables, the researcher should have subjects participate in the action in as controlled a setting as possible. Having participants exercise in the clinic allows for better control and evaluation of the degree of exercise. Limiting subjects to those who have similar symptoms will help limit extraneous variables that might be attributed to differences in asthma severity or any differences attributed to gender. Asking subjects to record unsupervised exercise limits the degree of control of this variable.

DIF: Cognitive level: Analyzing (Analysis)

5. The nurse understands that reading a research report requires the use of a variety of critical thinking and reading skills. Which of the following are true statements regarding skimming a research report? **Select all that apply.**
- a. Involves slowly reviewing the source to gain a broad overview of the content
 - b. Involves scanning the abstract or introduction and discussion sections
 - c. Involves reading the major headings along with one or two paragraphs under each heading
 - d. Involves reexamining the conclusions and implications for practice from the study
 - e. Involves making a preliminary judgment about the value of a source and whether to read the report in depth
 - f. Involves carefully reading the entire study

ANS: B, D, E

Skimming a research report involves scanning the abstract or introduction and discussion sections; involves reexamining the conclusions and implications for practice from the study; and enables the nurse to make a preliminary judgment about the value of a source and whether to read the report in depth. Skimming a research report involves quickly reviewing the source, and reading the major headings along with one or two sentences under each heading. Reading the entire study carefully describes comprehending a research report.

DIF: Cognitive level: Understanding (Comprehension)

6. The nurse participates in data collection in a study comparing the effect of two antilipidemia medications on total cholesterol in patients with hyperlipidemia. Which are extraneous variables to consider in such a study? **Select all that apply.**
- a. Differences between the antilipidemia medications
 - b. Family history of hyperlipidemia
 - c. Individual patients' weights
 - d. Other serum lipid values

ANS: B, C, D

Extraneous variables exist in all studies and can interfere with obtaining a clear understanding of the relationships among the study variables. One variable that can affect the study outcome is family history of hyperlipidemia in study participants. Patients who are obese may have different outcomes related to this variable than the reactions of those who are not obese. Other serum lipid values, such as high-density lipoproteins or low-density lipoproteins, can affect total cholesterol. The differences between the two medications are controlled in this study and are not extraneous variables.

DIF: Cognitive level: Applying (Application)