

## **LoBiondo-Wood: Nursing Research: Methods and Critical Appraisal for Evidence-Based Practice, 7th Edition**

### **Chapter 02: Research Questions, Hypotheses, and Clinical Questions**

#### **Test Bank**

#### **MULTIPLE CHOICE**

1. How is a hypothesis different from a research problem?
- There is no difference between a research problem and a hypothesis.
  - A hypothesis is theory based and a research question is practice based.
  - A hypothesis attempts to answer the question posed by the research problem.
  - A research problem defines clinical research and a hypothesis defines basic research.

ANS: C

Correct C: A hypothesis attempts to answer the research question.

Incorrect A: Hypotheses test research questions by connecting them to statistical analysis and flow from research questions.

Incorrect B: Although a hypothesis is sometimes theory based, sometimes it is not. Research questions are not always practice based; sometimes they originate in educational theory that connects to nursing education research and sometimes they originate in basic, rather than applied, research.

Incorrect D: Research problems are present in all types of research; a hypothesis may be present in basic or applied research.

DIF: Cognitive Level: Comprehension REF: Page 39

2. How is a hypothesis related to a theory?
- Hypotheses can determine the validity of a theory.
  - Hypotheses must be based on sound scientific rationale.
  - Theories can determine the validity of a hypothesis.
  - Theories can be used to evaluate the merit of a hypothesis.

ANS: B

Correct B: A sound hypothesis is consistent with an existing body of theory and research findings.

Incorrect A: Hypotheses bridge theory to the real world and empirical testing.

Incorrect C: Hypotheses test the validity of a theory's assumptions.

Incorrect D: This is the reverse of the correct answer.

DIF: Knowledge REF: Page 41

3. Which statement represents a potential area of research for a novice nurse researcher?
- “Most of our hospital admissions come in at night.”
  - “It is difficult to find personnel willing to work the night shift.”
  - “It seems that most of the patient falls on our unit occur during the night shift.”
  - “The night shift personnel are not attending promptly to the needs of our patients.”

ANS: C

Correct C: A specific patient problem is identified, and its potential contribution to the scientific body of nursing knowledge is promising. The problem is relevant to patients' state of health.

Incorrect A: The significance of this statement is doubtful regarding its potential contribution to the scientific body of nursing knowledge.

Incorrect B: The significance of this statement is doubtful regarding its potential contribution to the scientific body of nursing knowledge.

Incorrect D: The significance of this statement is doubtful regarding its potential contribution to the scientific body of nursing knowledge; it is a subjective observation.

DIF: Cognitive Level: Application REF: Page 28

4. After an idea or a clinical situation first emerges as a potential research problem for the nurse researcher, what is the appropriate next step in designing a research study?
- Identifying the variables
  - Formulating a hypothesis
  - Performing a literature review
  - Validating financial resources for a research project

ANS: C

Correct C: The literature review helps identify the relationship among potential variables and helps the researcher further define the research question, address gaps in the literature, and extend the knowledge base related to potential variables.

Incorrect A: It is too early to identify variables; they will be confirmed by the literature review, which will provide a critical analysis of the factors in the tentative research question or problem.

Incorrect B: The study may not be a hypothesis-testing study; the literature review will help to provide that direction by revealing the gaps in the literature.

Incorrect D: The problem's potential is revealed during a thorough review of the literature.

DIF: Cognitive Level: Knowledge REF: Page 29

5. What are the properties of interest in a research study that take on different values and differ with each other?
- Variables
  - Concepts
  - Hypotheses

## d. Assumptions

ANS: A

Correct A: This is the widely accepted and often cited definition of variables.

Incorrect B: A concept is an abstraction that names an object or phenomenon.

Incorrect C: A hypothesis is a prediction that helps to answer a research question.

Incorrect D: Assumptions are statements that are accepted as true.

DIF: Cognitive Level: Knowledge REF: Page 34

6. The nurse researcher is attempting to design a research study. Which identified research problem has enough significance to warrant further development?

- a. Children between age 8 and 12 do not eat the broccoli provided in school lunches.
- b. Women over age 100 are at moderate risk for development of breast cancer.
- c. Obese adults are at risk for development of type 2 diabetes mellitus.
- d. Sunscreen use among Native Americans is less than 10%.

ANS: C

Correct C: Nursing's potential contribution to behavior change regarding obesity is great, and so studies addressing obesity and diabetes mellitus hold great potential regarding the contributions of such studies to the scientific body of nursing knowledge.

Incorrect A: This research problem holds little potential to contribute to the scientific body of nursing knowledge.

Incorrect B: This research problem holds little potential to contribute to the scientific body of nursing knowledge.

Incorrect D: This research problem holds little potential to contribute to the scientific body of nursing knowledge.

DIF: Cognitive Level: Analysis REF: Page 28

7. Which factors or considerations constitute the feasibility of a research study that proposes to include teenage mothers and their experience with postpartum depression?

- a. Availability of the participants
- b. Direction of the hypotheses
- c. Gaps in the literature
- d. Design of the study

ANS: A

Correct A: A study's feasibility is determined by practical considerations, such as availability of subjects.

Incorrect B: The direction of the hypothesis is irrelevant to a study's feasibility.

Incorrect C: Gaps in the literature provide more support for the research problem, not its feasibility.

Incorrect D: The design of the study is shaped by the research question, not the study's feasibility.

DIF: Cognitive Level: Comprehension REF: Page 33

8. What is the key difference between the independent and dependent variables?
- The dependent variable should change in response to manipulation of the independent variable.
  - The independent variable should change in response to manipulation of the dependent variable.
  - Although both the dependent and independent variables are manipulated, only the dependent variable is considered an intervention.
  - The dependent variable relies on personal or demographic variables for strength, whereas the independent variable is strong enough to stand alone.

ANS: A

Correct A: Dependent variables change in response to manipulation of independent variables in experimental research.

Incorrect B: The reverse is accurate; dependent variables change in response to manipulation of independent variables in experimental research.

Incorrect C: The independent variable alone is considered a manipulation; the dependent variable is the consequence or presumed effect.

Incorrect D: Demographic variables are sometimes independent variables, such as in nonexperimental research when it may have occurred naturally; strength has nothing to do with its characteristics.

DIF: Cognitive Level: Comprehension REF: Page 34

9. The nurse researcher is designing a research study. Which statement regarding independent and dependent variables is true?
- All research problem statements must contain a dependent and an independent variable.
  - There should only be one dependent variable associated with a single independent variable.
  - The relationship between the independent and the dependent variable for any study must be causal.
  - A given characteristic or situation may be the dependent variable in one study and the independent variable in another.

ANS: D

Correct D: Causal or association direction determines the classification of variables as independent or dependent.

Incorrect A: Some descriptive studies have one variable only; qualitative studies do not include independent and dependent variables.

Incorrect B: Many studies include more than one independent variable and more than one dependent variable.

Incorrect C: Causal relationships are not necessarily implied by independent and dependent variables; association-type research questions provide evidence.

DIF: Cognitive Level: Comprehension REF: Page 36

10. Which part of the following research question is the dependent variable?

“How does maternal employment among health care professionals affect infant health during the first 6 months of life?”

- a. Infant health
- b. Maternal employment
- c. First 6 months of life
- d. Health care professionals

ANS: A

Correct A: Infant health is the consequence or presumed effect that changes regarding maternal employment as the independent variable.

Incorrect B: *Maternal employment* effects a change in the dependent variable and occurs naturally before or during the study; it is presumed to occur and is measured as it naturally happens.

Incorrect C: First 6 months of life is neither an independent nor a dependent variable in this example and most likely refers to the time the subjects (mothers and infants) will be observed in the study.

Incorrect D: Health care professionals constitute the population to be studied.

DIF: Cognitive Level: Application REF: Page 35

11. Which type of format is demonstrated by the following research question: “Is there a relationship between self-esteem and body weight among postmenopausal women?”

- a. Correlational
- b. Comparative nonexperimental
- c. Quantitative experimental
- d. Phenomenologic

ANS: A

Correct A: Self-esteem and body weight are variables that are related in an associative way. The word *relationship* strongly suggests correlational design studies.

Incorrect B: Self-esteem and body weight are not included in a comparative nonexperimental study.

Incorrect C: This research question does not include a causal research question.

Incorrect D: This research question does not suggest a phenomenologic design study; human experience is not mentioned in the question.

DIF: Cognitive Level: Application REF: Page 40

12. What type of format is demonstrated by the following research question: "What is the lived experience of late-stage pregnancy loss among women over age 35?"
- Correlational
  - Comparative nonexperimental
  - Quantitative experimental
  - Phenomenologic

ANS: D

Correct D: The *lived experience* phrase suggests a phenomenologic study.

Incorrect A: This research question does not demonstrate a correlational study; the *lived experience* phrase suggests a phenomenological study.

Incorrect B: This research question is not a comparative nonexperimental study.

Incorrect C: This research question is not a quantitative experimental study; an independent variable and a dependent variable are not in evidence.

DIF: Cognitive Level: Application REF: Page 35

13. Which research problem is testable for the nurse researcher as currently written?
- Should mothers addicted to crack cocaine be permitted to raise their children?
  - Is the classroom an appropriate place to teach sex education to 10-year-old children?
  - Are elders residing in assisted-living facilities satisfied with their level of social interaction?
  - Is a positive HIV/AIDS status sufficient rationale for limiting the employment of elementary school teachers?

ANS: C

Correct C: This example implies variables that can be measured and suggests a comparative nonexperimental design study. The independent variable is residence: residing in assisted-living facilities and not residing in assisted-living facilities; the dependent variable is social interaction.

Incorrect A: This example suggests a value statement rather than a research question.

Incorrect B: This example suggests a value statement rather than a research question.

Incorrect D: This example suggests a value statement rather than a research question.

DIF: Cognitive Level: Analysis REF: Page 36

14. What is the purpose of a hypothesis for any study?
- To identify the dependent and independent variables
  - To provide direction for research by identifying the expected outcome
  - To define the appropriate measures needed to test the research question
  - To provide a means to determine the feasibility of the research problem

ANS: B

Correct B: A hypothesis posed as a declarative statement predicts an expected outcome.

Incorrect A: A hypothesis is a statement about the relationship between two or more variables that suggest an answer to the research question.

Incorrect C: A hypothesis does not define the appropriate measures needed to test the research question; it suggests statistical testing.

Incorrect D: A hypothesis does not determine the feasibility of a research problem.

DIF: Cognitive Level: Knowledge REF: Page 39

15. Which hypothesis fails to meet the criteria of testability?

- a. Proper handwashing prevents spread of infection.
- b. Consistent practice of low-impact aerobic exercise will increase coordination among older adults.
- c. Patients who use guided imagery during magnetic resonance imaging (MRI) procedures will have reduced perceptions of emotional distress compared with patients who do not use guided imagery.
- d. Postoperative patients who receive around-the-clock scheduled analgesics will have lower levels of pain compared with postoperative patients who receive analgesics on an as-needed (PRN) schedule.

ANS: A

Correct A: This statement does not suggest that there is a predicted outcome as specifically as the other examples; the term *proper* is value laden.

Incorrect B: This hypothesis includes a predicted outcome.

Incorrect C: This hypothesis includes a predicted outcome.

Incorrect D: This hypothesis includes a predicted outcome.

DIF: Cognitive Level: Analysis REF: Page 36

16. Which hypothesis is nondirectional?

- a. Hospitals with an infection-control nurse will have fewer instances of sepsis among inpatients than hospitals without an infection-control nurse.
- b. There will be a greater weight loss among dieting patients who receive a weekly supportive telephone call from a dietitian than among dieting patients who do not receive a weekly supportive phone call.
- c. There will be a difference in stage of disease for prostate cancer among men who had an abnormal prostate-specific antigen (PSA) screening compared with men who had an abnormal digital rectal examination (DRE) screening.
- d. Children who receive weekly counseling for one year after the death of a parent will perform better in school than children who do not receive weekly counseling after the death of a parent.

ANS: C

Correct C: This example includes a nondirectional hypothesis; there is no expected direction evident.

Incorrect A: This example includes a directional hypothesis; the expected direction is present (fewer).

Incorrect B: This example includes a directional hypothesis; the expected direction is present (greater).

Incorrect D: This example includes a directional hypothesis; the expected direction is present (better).

DIF: Cognitive Level: Analysis

REF: Page 44

17. What type of hypothesis is demonstrated by the following statement? “There will be no difference in the number of adverse events among patients discharged two days after an abdominal hysterectomy compared with patients discharged four days after an abdominal hysterectomy.”

- a. Nondirectional hypothesis
- b. Directional hypothesis
- c. Deductive hypothesis
- d. Null hypothesis

ANS: D

Correct D: This is a null hypothesis, stating that there is no relationship between the independent and dependent variables.

Incorrect A: This example is not a nondirectional hypothesis; no expected direction is present.

Incorrect B: This example is not a directional hypothesis.

Incorrect C: This example is not a deductive hypothesis.

DIF: Cognitive Level: Application

REF: Page 43

18. The nurse researcher notes the following statements in a research article: “This study explored changes in coping and emotion that occur between the preoperative and the postoperative period. Further, the relationship between coping and emotion preoperatively and postoperatively were evaluated. Finally, the influence of preoperative coping and emotion on postoperative emotion is documented.” This section is which part of a research study?

- a. Results
- b. Method
- c. Purpose
- d. Hypothesis

ANS: C

Correct C: The example encompasses the aims or goals that the investigator hopes to achieve with the research, not the question to be answered.



Incorrect A: No results were noted in the example.

Incorrect B: Although methods are hinted at, the example does not include the method section.

Incorrect D: The example suggests a hypothesis but includes more of the aim of the study.

DIF: Cognitive Level: Application REF: Page 37

19. Select the independent variable in the following research purpose: This study will compare the effect of warm and cold applications on the resolution of intravenous (IV) infiltrations in hospitalized, postoperative elderly patients.

- a. Postoperative elderly patients
- b. Resolution
- c. Warm and cold applications
- d. IV infiltrations

ANS: C

Correct C: This answer identifies the variable that is manipulated and that influences the dependent or outcome variable.

Incorrect A: This answer identifies the subjects of the study.

Incorrect B: This answer identifies a change in the dependent or outcome variable of the study.

Incorrect D: This answer identifies the dependent or outcome variable of the study.

DIF: Cognitive Level: Application REF: Page 34

20. There is a positive relationship between nurse attitudes toward AIDS patients and the number of AIDS patients they have cared for. Identify the type of hypothesis.

- a. Null
- b. Nondirectional
- c. Directional
- d. Causal

ANS: C

Correct C: *Positive* relationship is noted; this indicates a directional hypothesis.

Incorrect A: The example is not a null hypothesis; a null hypothesis specifies no relationship.

Incorrect B: The example is a directional hypothesis, not a nondirectional hypothesis.

Incorrect D: The word *relationship* indicates an association testing hypothesis.

DIF: Cognitive Level: Analysis REF: Page 43, 44

21. The initial review of the literature helps the investigator to:

- a. Organize the summary
- b. Identify statistical tests

- c. Identify the need to extend knowledge base
- d. Determine the scope of the study

ANS: C

Correct C: This might be discovered in the initial review of the literature.

Incorrect A: Often subsequent reviews of the literature end with a summary.

Incorrect B: Statistical tests may not be discovered in the initial literature review.

Incorrect D: The scope of the study is better determined in subsequent literature reviews.

DIF: Cognitive Level: Comprehension REF: Page 32

22. Which hypothesis would be classified as a statistical hypothesis?

- a. Oxygen inhalation by nasal cannula of 2 L/min will decrease oral temperature measurement taken with an electronic thermometer.
- b. Oxygen inhalation by nasal cannula of 2 L/min does not affect oral temperature measurement taken with an electronic thermometer.
- c. There will be a greater decrease in anxiety scores for patients receiving informational videos before open heart surgery than for patients receiving standard printed information.
- d. There will be a difference in the performance accuracy of adult nurse practitioners and family nurse practitioners in formulating accurate diagnoses and acceptable interventions for suspected cases of domestic violence

ANS: B

Correct B: This hypothesis is worded in such a way as to be a statistical hypothesis.

Incorrect A: This hypothesis would be considered a directional hypothesis rather than a statistical (null) hypothesis.

Incorrect C: This hypothesis would be considered a directional hypothesis rather than a statistical (null) hypothesis.

Incorrect D: This hypothesis would be considered a nondirectional hypothesis rather than a statistical (null) hypothesis.

DIF: Cognitive Level: Analysis REF: Page 43

23. Which statement would be an example of a clinical question?

- a. What is it like to have postpartum depression?
- b. Does the use of weight-reduction aids increase the likelihood of developing postpartum depression?
- c. Are diet and exercise effective weight-reduction aids for postpartum women?
- d. Diet and exercise are not effective as weight-reduction aids for postpartum women.

ANS: C

Correct C: This statement is worded as a clinical question.

Incorrect A: This statement is worded as a phenomenologic hypothesis.

Incorrect B: This statement is worded as a directional hypothesis.

Incorrect D: This statement is worded as a null hypothesis.

DIF: Cognitive Level: Analysis REF: Page 47

24. What are the four components of a clinical question?

- a. Population, inference, comparison, outcome
- b. Population, intervention, clinical, outcome
- c. Population, implication, clinical, objective
- d. Population, intervention, comparison, outcome

ANS: D

Correct D: The four components of a clinical question are population, intervention, comparison, and outcome.

Incorrect A: The four components of a clinical question are population, intervention, comparison, and outcome.

Incorrect B: The four components of a clinical question are population, intervention, comparison, and outcome.

Incorrect C: The four components of a clinical question are population, intervention, comparison, and outcome.

DIF: Cognitive Level: Knowledge REF: Page 47

### **MULTIPLE RESPONSE**

1. Which of the following characteristics should be evident in a fully developed research question? (Select all that apply.)

- a. Identifies the variables under consideration
- b. Specifies the population being studied
- c. Implies the possibility of empirical testing
- d. Does not focus the purpose on the phenomenon of interest

ANS: A, B, C

Correct A: Identifying the variables under consideration is a characteristic of a satisfactory research question.

Correct B: Specifying the population being studied is a characteristic of a satisfactory research question.

Correct C: Implying the possibility of empirical testing is a characteristic of a satisfactory research question.

Incorrect D: Failing to focus the purpose on the phenomenon of interest is not a characteristic of a satisfactory research question.

DIF: Cognitive Level: Knowledge REF: Page 34