



**AMREF INTERNATIONAL UNIVERSITY
SCHOOL OF MEDICAL SCIENCE
DEPARTMENT OF REHABILITATION MEDICINE
BACHELOR OF SCIENCE IN PHYSIOTHERAPY
END OF MAY-AUGUST 2024 TRIMESTER EXAMINATIONS**

**UNIT CODE: PHT 324 UNIT NAME: EVIDENCED BASED PRACTICE
(FRESH ENTRY SPECIAL PAPER)**

**DATE: THURSDAY/ 8TH / AUGUST
TIME: TWO HOURS
START: 11.15AM STOP : 1:15PM**

INSTRUCTIONS (physical exams)

- 1. Do not write on this question paper**
(Marks and questions distribution as per program curriculum.)

INSTRUCTIONS (Online examinations)

1. This exam is marked out of 70 marks
2. This Examination comprises 3 Sections
3. This online exam shall take 2 Hours
4. Late submission of the answers will not be accepted
5. Ensure your web-camera is on at all times during the examination period
6. No movement is allowed during the examination
7. Idling of your machine for 5 min or more will lead to lock out from the exam
8. The Learning Management System (LMS) has inbuilt integrity checks to detect cheating
9. Any aspect of cheating detected during and or after the exam administration will lead to nullification of your exam
10. In case you have any questions call the invigilator for this exam on Tel. 0705833434 and or the Head of Department on Tel 0720491032
11. For adverse incidences please write an email to: amiu.examinations@amref.ac.ke

1. Which of the following is Not a benefit of Evidence Based Practice (EBP)?
 - A. Evidence Based Practice promotes an attitude of inquiry in health professionals
 - B. It ensures that practice is informed by best available evidence
 - C. It ensures there is infinite availability of health resources for use by patients
 - D. It leads to improved patient outcome
2. Which of the following is NOT a barrier for Evidence Based Practice in Physiotherapy?
 - A. Lack of generalization of results
 - B. Inability to understand statistics
 - C. Lack of resources
 - D. Non-conformity
3. Which of the following is NOT a step of Evidence Based Practice (EBP) commonly referred to as “5A’s”?
 - A. Apply
 - B. Analyze
 - C. Assess
 - D. Appraise
4. In formulating a searchable question in Evidence Based Practice, the PICO framework is popularly used. What the type of question listed below?
“For obese children, does the use of community recreation activities compared to educational programs on lifestyle changes reduce the risk of developing diabetes mellitus?”
 - A. Prevention
 - B. Prognosis
 - C. Therapeutic
 - D. Etiology
5. Which of the following is True about the Appraisal step of Evidence Based Practice?
 - A. The appraisal step only considers research with perfect methodologies.
 - B. Appraisal is an integral step in Evidence Based Practice
 - C. During appraisal, only the most recent research is considered valuable.
 - D. The appraisal step is done in isolation of the other steps of Evidence based Practice
6. Evidence Based Practice involves integration of the following EXCEPT?
 - A. Clinical knowledge and expertise
 - B. Patients unique needs
 - C. Personal preferences
 - D. Applying latest research findings
7. Where do cross-sectional studies rank in the hierarchy of evidence in EBP?
 - A. Level 1
 - B. Level 2
 - C. Level 3
 - D. Level 4
8. In a study to determine the effect of manual therapy combined with exercise on pain, disability, and quality of life in individuals with nonspecific neck pain; reported that With a low certainty of evidence, 16 studies demonstrated that manual therapy plus exercise is significantly better than exercise alone for reducing pain (-0.95 (95% CI: -

1.38, -0.51)). Similarly, with low certainty of evidence, 13 studies demonstrated that manual therapy plus exercise is significantly better than exercise alone for reducing disability (-0.59 (95% CI: -0.90, -0.28)). Four studies demonstrated that manual therapy plus exercise is significantly better than a control intervention for reducing pain (moderate certainty) (-2.15 (95% CI: -3.58, -0.73)) and disability (low certainty) (-2.39 (95% CI: -3.80, -0.98)). With a high certainty of evidence, four studies demonstrated no significant difference between manual therapy plus exercise and exercise alone in quality of life (SMD of -0.02 (95% CI: -0.21, 0.18)).

Above is an extract from an article's abstract. Determine the study design of the above abstract

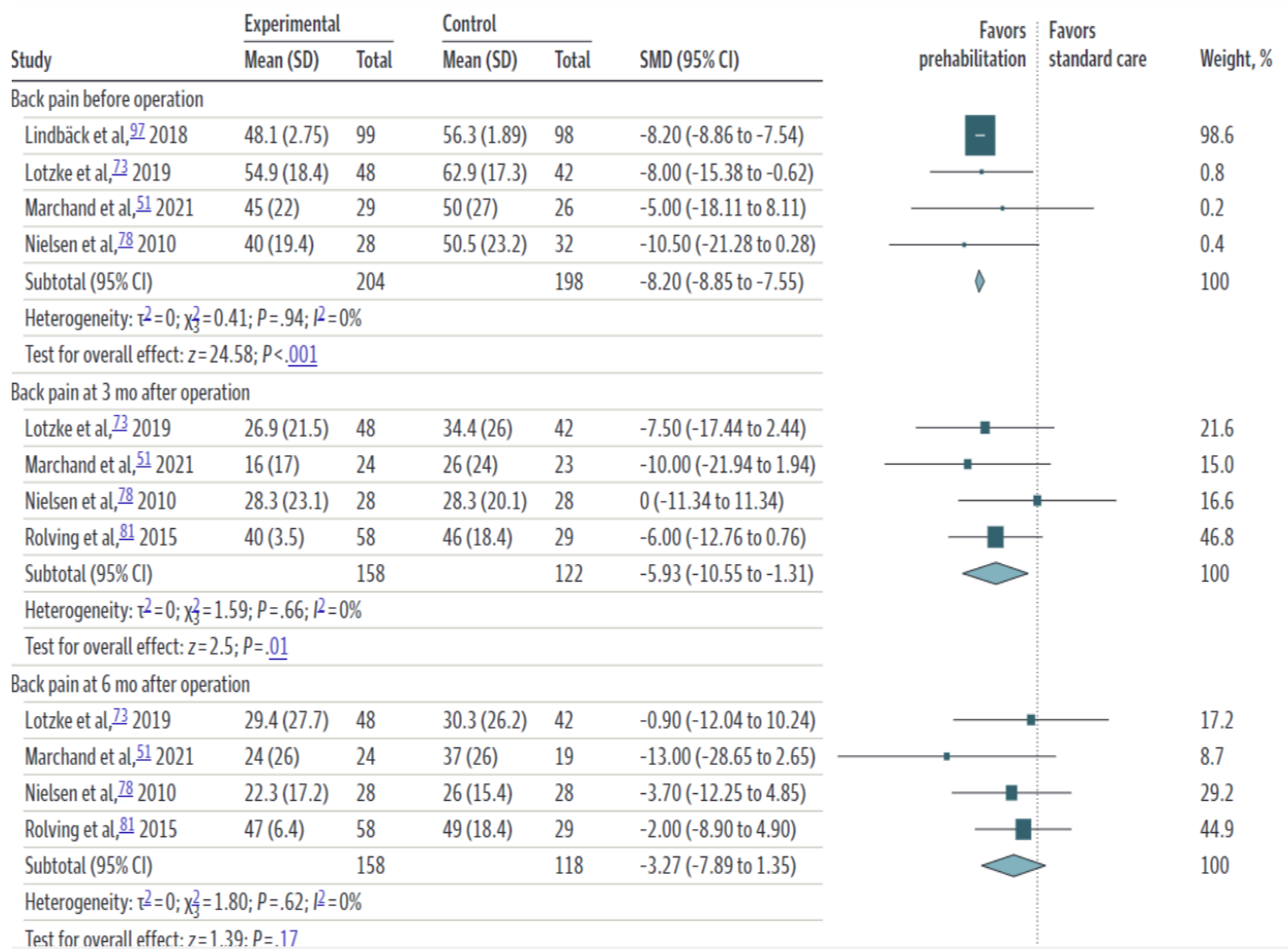
- A. Systemic review
 - B. Meta-analysis
 - C. Both systemic review and meta-analysis
 - D. Randomized clinical trial
9. Which of the following is NOT classified as an observational study?
- A. Randomized clinical trial
 - B. Prospective cohort study
 - C. Cross sectional study
 - D. Case control study
10. The following question is formulated using the PICO framework. Which type of question has been formulated below; "Do women adults with low back pain have more associated risk factors as compared to their male counterparts?"
- A. Prognosis
 - B. Etiology
 - C. Prevention
 - D. Prognosis
11. Mwangi a physiotherapist has been treating Sarah for a few weeks now, primarily focusing on manual therapy techniques like trigger point release and relaxation massage for her severe tension headaches. While Sarah has reported some improvement, the headaches persist and significantly impact her daily life. Mr. Mwangi decides to delve deeper into the latest research to find the most effective management strategies for severe tension headaches. He performs a meticulous search in a physiotherapy database using keywords like "severe tension headache," "physiotherapy management," and "clinical trials." However, the search yields fewer relevant articles than she anticipated.
- Which of the following Boolean operators can Mr. Mwangi use to broaden his searches?
- A. OR
 - B. AND
 - C. NOT
 - D. XOR
12. Which of the following is NOT a primary function of the peer review process in evaluating research literature for evidence-based practice?
- A. To assess the methodological soundness of the research design

- B. To evaluate the accuracy and relevance of the research findings
 - C. To ensure the research aligns with the author's personal opinions
 - D. To determine if the research contributes to the existing body of knowledge in the field
13. A researcher is evaluating studies on the effectiveness of a new medication for treating migraines. They prioritize studies published in high-impact medical journals, disregarding research published in less prestigious journals with smaller sample sizes. This bias is most likely:
- A. Publication bias
 - B. Anchoring bias
 - C. Confirmation bias
 - D. Availability bias
14. Sarah, a physiotherapist with 10 years of experience, is treating a new patient, John, who has knee osteoarthritis. John experiences pain and stiffness in his knee, making it difficult to climb stairs and walk long distances. Sarah wants to design the most effective treatment plan for John, incorporating both pain management and strength training. After collecting a pool of literature from various data bases, which of the following factors should she not consider when evaluating the research literature, she has pooled?
- A. Authority
 - B. Currency
 - C. Writing style
 - D. Coverage
15. Which of the following is NOT a part of the appraisal process?
- A. Research topic
 - B. Clinical bottom line
 - C. Applicability
 - D. Results
16. When using a meta-analysis to inform EBP decisions, it's important to consider:
- A. Only the most recent studies included in the analysis.
 - B. The quality and methodological rigor of the studies included.
 - C. Only studies with statistically significant results.
 - D. Only studies that directly support the desired outcome.
17. Which of the following is the PRIMARY benefit of using critically appraised topics (CATs) in physiotherapy?
- A. They are a quick and easy way to diagnose patients.
 - B. They provide a summary of the best available evidence for clinical decision-making.
 - C. They eliminate the need for physiotherapists to critically appraise research themselves.
 - D. They are a standardized format for documenting patient progress.
18. Which of the following is a MAJOR limitation of Critically Appraised Topics (CATs) in physiotherapy?
- A. They are time-consuming to create.
 - B. They are not peer-reviewed.

- C. They provide a good overview of current research.
D. They are difficult to understand for clinicians.
19. When appraising the relevance of a study to your research question, which of the following aspects is LEAST important to consider?
A. The methodology used in the study
B. The publication date of the article
C. The funding source for the research
D. The specific population studied in the research
20. When appraising the quality of an EBP study, the absence of blinding can:
A. Automatically invalidate the entire study.
B. Increase the risk of bias in the results.
C. Have no impact on the study's overall credibility.
D. Guarantee the study is more ethical than blinded studies.
21. While RCTs are considered the gold standard for EBP, there are situations where randomization might not be feasible. In which of the following scenarios would randomization be LEAST likely to be implemented?
A. Testing the effectiveness of a new surgical technique.
B. Comparing two different educational approaches for children.
C. Evaluating the impact of a public health campaign on smoking cessation rates.
D. Studying the long-term effects of a chronic disease on patient outcomes.
22. To assess the clinical effectiveness and cost-effectiveness of exercise-based CR (exercise training alone or in combination with psychosocial or educational interventions) compared with 'no exercise' control, on mortality, morbidity and health-related quality of life (HRQoL) in people with CHD. Part of the findings reported Exercise-based CR likely results in little to no difference in risk of cardiovascular mortality (RR 0.88, 95% CI 0.68 to 1.14). Which of the following statements on CI is TRUE?
A. The 95% confidence interval (CI) of 0.68 to 1.14 suggests we are 95% confident that the true effect of exercise-based calorie restriction (CR) on cardiovascular mortality risk
B. A confidence interval (CI) tells us the exact value of the effect being studied.
C. A narrower confidence interval always indicates a stronger effect.
D. If the confidence interval includes 0 (no effect), the exercise program is ineffective.
23. Based on 26 trials that used a non-exercise control, we found a significant effect on fatigue in favour of exercise therapy (standardized mean difference (SMD) -0.53, 95% confidence interval (CI) -0.73 to -0.33; P value < 0.01). The results are from a RCT study whose aim was to determine the effectiveness and safety of exercise therapy compared to a no-exercise control condition or another intervention on fatigue, measured with self-reported questionnaires, of people with Multiple Sclerosis. Which of the statements below fully represents the true interpretation of the P value < 0.01?
A. The results are statistically significant.

- B. There is a less than 1% chance that the observed difference in fatigue levels between the exercise and control groups occurred by random chance alone
 - C. There is a more than 1% chance that the observed difference in fatigue levels between the exercise and control groups occurred by random chance alone
 - D. There is a 1% chance that exercise therapy has no effect on fatigue.
24. Based on the findings in Question 23. Which of the following statements is TRUE?
- A. Exercise therapy likely reduces fatigue in people with Multiple Sclerosis.
 - B. There is a 0% chance that exercise therapy has no effect on fatigue.
 - C. The true effect size (SMD) is certain to be between -0.73 and -0.33
 - D. We are 95% confident that the true effect size lies somewhere between -0.73 and -0.33.
25. Which of the following is a NOT a benefit of descriptive statistics?
- A. It aids in identification and understanding of baseline equivalence
 - B. It assists to identify outliers that might warrant further investigation
 - C. It assists identify missing data which can affect the reliability of the conclusions
 - D. They have a limited scope of application
26. Which of the following is the PRIMARY source of internal evidence in Evidence-Based Practice (EBP)?
- A. Systematic reviews and meta-analyses
 - B. Clinical practice guidelines
 - C. Data collected directly from your client/patient
 - D. Expert opinions from renowned researchers
27. Dr. Sarah, a physiotherapist researcher, is treating several patients with chronic low back pain. She notices a trend – many of her patients who participate in regular Pilates classes report significant improvements in pain levels and overall function. What is the name of this process of reasoning in EBP?
- A. Inductive reasoning
 - B. Deductive reasoning
 - C. Clinical reasoning
 - D. None of the above
28. Which of the following is TRUE about the Tests of statistical heterogeneity?
- A. Tests of statistical heterogeneity help assess whether the results of multiple studies are consistent or if there's significant variation in findings.
 - B. A common test for heterogeneity is Cochran's Q statistic, which follows a chi-square distribution.
 - C. While a low p-value from the chi-square test suggests heterogeneity, interpreting it requires caution.
 - D. The presence of heterogeneity automatically renders the combined effect size from all studies useless.
29. In a systematic review and meta-analysis study whose aim was to evaluate whether prehabilitation is associated with improved preoperative and postoperative outcomes compared with usual care for patients undergoing orthopedic surgery. A sample of 48 unique trials was selected. Below is a figure that shows Forest Plot of Mean

Differences in Back Pain Before and After Lumbar Surgery from that study. Answer the questions below.



Which studies in this forest plots shown did not statistically significantly favor the standard care compared to the prehabilitation?

- A. Marchand et al, 2021
- B. Rolving et al, 2015
- C. Nielsen et al, 2010
- D. Lotzke et al,⁷³ 2019

30. The following is NOT true of the diamond under the pool of randomized clinical trial of studies on back pain at 6 months after operation?

- A. The study pooled together showed no effect on the outcomes of both preoperative and postoperative when compared with usual care for patients undergoing orthopedic surgery

- B. The studies pooled in this group showed no or poor reliability
- C. The studies pooled together showed significant effect on the outcomes of both preoperative and postoperative when compared with usual care for patients undergoing orthopedic surgery
- D. The studies pooled together at 6 months after operation cannot be generalized to the larger population

Section B. Attempt all the questions (20 Marks)

1. Describe standard deviation (2 Mark)
2. Explain why it is necessary to account for all participants of a randomized clinical trial when appraising the quality of the study (4 Mark)
3. Beneficence is a general principle of research ethics, explain its significance in EBP? (4 Mark)
4. Discuss deductive reasoning in Evidence Based Practice (4 Marks)
5. Outline the limitations of Critically Appraised Topics (3 Marks)
6. John, a 55-year-old male with a history of osteoarthritis in his knees. He reports experiencing increased pain and stiffness in his knees, particularly in the mornings, which makes it difficult for him to get out of bed and participate in his usual daily activities. He also mentions occasional knee swelling and instability. John has been managing his osteoarthritis with over-the-counter pain medication but has not previously participated in any formal physiotherapy program. During his assessment he mentions that his immediate goal is the reduction of pain and morning stiffness since it interferes with his activities of daily living. As a physiotherapy student, assigned to John's case under the supervision of a licensed physiotherapist, what searchable clinical question would you formulate using the PICO framework to aid you to develop the best treatment plan for John? (3Marks)

SECTION C. Attempt one of the following questions.(20 Marks)

1. Discuss the various research paradigms in relation to evidence-based practice (20 Marks)
2. Appraising various sources of evidence or literature is the most integral step of Evidence Based Practice. Discuss the four areas that are used to appraise a clinical practice guideline document (20 Mark)