Intercollegiate Specialty Fellowship Examination

Part A

Restorative Dentistry

Critical Appraisal

Extract - 30 marks

[A randomised clinical trial to determine the effect of a toothpaste containing enzymes and proteins on gum health over 3 months - PubMed (nih.gov)](#)

1. The authors have provided a null hypothesis for this study.

   a) What is a null hypothesis? (1 mark)
   b) Provide a suitable alternate hypothesis for this study (2 marks)
   (3 marks total)

2. This study has used a negative control.

   a) What is a negative control? (1 mark)
   b) Why is a negative control sometimes included in a study? (1 mark)
   c) Comment on the appropriateness of the negative control used in this study (2 marks)
   (4 marks total)

3. What is the evidence level for this study? (1 mark) Where does it sit in the hierarchy of evidence? Explain your answer. (1 mark)
   (2 marks total)

4. Within the study methodology:

   a) How were participants recruited to this study? (1 mark) What sampling technique was used? (1 mark)
   b) In general terms, provide three ways by which the possibility of errors or bias in the recruitment process could be reduced. (3 marks)
   (5 marks total)

5. Within the study methodology:

   a) Discuss the sample size calculations used in this study. (2 marks)
   b) How could the method used to determine sample size be improved? (1 mark)

   (3 marks total)

6. With regards to exclusion criteria:

   a) What would have been an appropriate reason for excluding participants with certain medical conditions? (1 mark)
   b) What other medical conditions could have caused participants to be excluded? (1 mark)
   c) Comment on the exclusion of smokers. Was this appropriate? (2 marks)

   (4 marks total)

7. The authors collected Schiff and VAS data. How would these data be classified? (1 mark). Describe the distribution of these data. (1 mark)

   (2 marks total)

8. Within the statistical analyses:

   a) Describe the uses of the statistical tests, the ANOVA and the ANCOVA. (2 marks)
   b) Discuss whether the use of ANCOVA was appropriate for this study. (1 mark)

   (3 marks total)

9. Summarise the findings and comment on the validity of the conclusions of this study.

   (4 marks total)

Total Marks for Extract = 30