statistically significant differences are mentioned, the reader has to consider their clinical and/or social significance as well.

Multiple Comparisons

Sometimes, a group of subjects are measured or compared repeatedly at different points in time resulting in the problem of 'multiple comparisons'. Ideally, there should be some discussion on the effect of multiple comparisons on the observed results. The more the significance tests that are performed in a clinical trial, the more likely are false positive results to appear by chance. [9] Therefore, multiple analyses increase the risk of false positive results. It is generally accepted that studies that report positive results are more likely to be published than those with negative results and thus the risk of false positive results in the literature may be high.[10]

The Discussion and Conclusions Sections

This is often an interesting and easier section to read compared to the result section. At this stage, the reader should see that the conclusions are consistent with the research questions stated in the 'Introduction' and the findings in the 'Results' sections. The researcher should identify similarities and differences between his findings with those of other researchers in the field. Discussion on drug trials should provide relevant information on the safety, tolerability, efficacy and price of new treatments comparing them with existing ones. Ideally, the results of the study should be within the context of existing knowledge. If marked conflicts exist with the findings of other researchers, the investigator should discuss the likely reasons for the differences. It is important to note whether the researcher has over-generalised his findings or tends to extrapolate beyond the data generated in the study.

Generalisability or external validity is the extent to which the results of a particular study can be used to make an inference about other populations. This is more often an issue for the critical reader to decide rather than for the researcher. Has the researcher addressed the limitations of his/her study and offered suggestions for further research on the subject? Finally, however convincing the study design, the results or the arguments put forth by the researcher, the critical reader should pose the final question - Am I going to believe and practice all that I have just read?

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M.C.Q.s on the Article on Critical Reading and Appraisal of Medical Literature

1. When evaluating the efficacy and effectiveness of a preventive intervention, the best study design to use is:

   a) Descriptive study design.
   b) Case-control study.
   c) Case report.
   d) Randomised controlled trial.
   e) Cohort study.

2. Which of the following statements regarding study designs is/are true?

   a) Cohort studies can be either prospective or retrospective in nature.
   b) The cohort approach is useful in calculating prevalence rates of diseases.
   c) The cohort study has the strongest observational design for studying a cause and effect relationship.
   d) In a cross-sectional study, the exposures to the conditions of interest are studied simultaneously.
   e) The case control design is efficient for the study of rare diseases.

3. In a clinical trial evaluating two antihypertensive medications, the aim of randomization is to:

   a) Select motivated patients for the trial.
   b) Obtain treatments groups of identical size.
   c) Enhance patient compliance with treatment.
   d) Eliminate the possibility of observer bias.
   e) Obtain study groups with comparable baseline characteristics.

4. In relation to sample size determination, which of the following statements are correct?

   a) Increasing the sample size reduces the chance of a Type I error.
   b) Increasing the sample size increases the chance of a Type II error.
   c) Increasing the sample size reduces the expected difference in outcome between the groups studied that is detectable.
   d) Sample size determination is influenced by the amount of variability in the subjects to be studied (standard deviation).
   e) Is determined based on the primary research end point.

5. The effectiveness of a new drug therapy for breast cancer is compared with what of a standard regimen in a limited clinical trial. No significant difference in 5 year survival rates were reported although the new drug was in fact superior. The failure to prove the greater effectiveness of the new drug may be due to:

   a) Measurement bias.
   b) Type II error.
   c) Type I error.
   d) Blinding.
   e) Placebo effect.