Guidelines for presenting statistical results in JCN

The following guidelines have been produced to offer advice to authors on how best to provide a clear description of the statistical methods and interpretation of results in research papers for publication in JCN.

Descriptions of statistical methods should include the following:

**Study aim(s)**
Include the research objectives or the research questions to be addressed in the study. Note that these should tie in with the hypotheses to be tested (if any).

**Study design**
A description of the study design should be included, for example, a randomised clinical trial, a cross-sectional study, case-control study, descriptive study, quasi-experimental etc.
The design for the particular study being reported should be described in detail and, if relevant, details of sample selection, if and how randomisation was used, any treatment allocation, whether ‘blinding’ was used and how sample size was determined should be given.

**Data collection**
Details on how data were collected should be included, for example, by using questionnaires, interviews, or observation.
Where appropriate, information about validity and reliability of survey instruments should also be included.
Surveys should have response rates specified in the results section, and the representativeness of the sample and possible effects of non-response should be considered in the discussion section of the paper.
The year(s) of data collection should be included.

**Data Analysis**
All statistical methods of analysis should be very clearly described. This will include details of which descriptive statistics are used to describe the study sample and also any statistical tests or methods which are used to answer the research questions in the study. It may be necessary to demonstrate the validity of the assumptions for some tests or statistical methods e.g. t-tests, regression etc.
Any unusual or complex statistical analysis should only be used where justified and a reference for further reading should be given for any advanced statistical methods.
Details should be given of any software used to perform the analysis.

**Results**
This section should include the response rate if a survey has been carried out, or give details of the number included in the study sample, giving reasons for any exclusions, problems with missing data etc.
Firstly, descriptive statistics of the study sample should be given. Then the results should be presented in turn explicitly for each study aim/research question/hypothesis.

**Study limitations**
In the discussion section, any study limitations should be critically discussed, for example, does the sampling method employed lead to the selection of a representative sample? Is the survey nonresponse likely to lead to biased study results?
As a general guide, the statistical methodology should be described in enough detail in order that the study design and analysis could be repeated and would verify the study findings.

Some particular pointers are noted below for additional guidance:

- When quoting the mean and standard deviation, presenting as mean ± SD should be avoided; instead, authors should quote the mean and give the SD in brackets e.g. the mean score is 11.6 units (SD 2.4).
- Give the actual p-values for results, and avoid presentation as ‘NS’ for ‘non-significant’, or ‘p<0.05’.
- For highly significant results, truncate the p-value to three decimal places and present, for example, as p<0.001.
- Provide confidence intervals for effect sizes wherever possible; this enables evaluation of the ‘clinical significance’ of the result as well as the statistical significance.
- Usually, two-sided tests and confidence intervals are appropriate; the use of a one-sided test must be justified in the paper.
- Include sufficient details about the variable measurements to enable the reader to determine the type of data e.g. continuous or categorical, and therefore verify whether the analysis used is appropriate.
- Tables and figures should be simple and easy to follow.
- Refer to all tables and figures in the text, and describe the main points or trends for each table or figure in the text. This should not be redundant text that merely describes information already provided in tables and figures.
- When using regression modelling methods, list all predictors considered for exclusion in the modelling and list all predictors included in the final model. Report effect estimates along with either standard errors or confidence intervals for these estimates, and give the p-values for the predictors. Discuss checks carried out to assess model assumptions and diagnostics.
- When carrying out multiple testing, the authors must address the problem of increased rates of false positive findings. This can be addressed by either using an adjustment to the p-value e.g. Bonferroni correction (or one of the other adjustment methods), or to critically discuss the problems of multiple testing when discussing the results.

Additional reading:
