Author's response to reviews

Title: The influence of the cultural climate of the training environment on physicians' self-perception of competence and preparedness for practice.

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Author's response to reviews: see over
Response to reviewer's comment

Title: The influence of the cultural climate of the training environment on physicians' self-perception of competence and preparedness for practice.

Version: 5 Date: 30 September 2008
Reviewer: Douglas Curran-Everett

Major Compulsory Revisions

1. Power analysis. I am not clear on what makes G*Power unique. On p 8, what outcome was used to estimate the sample size of 40 subjects? This was my original question, but I am not sure the authors understood the focus of my question, so I will try again. There are other software packages (for example, SAS, PASS) that perform power and sample size analyses. What makes G*Power unique? Why not use one of the other packages?

As the reviewer rightly mentioned, there are various software packages that can be used to perform statistical power analyses. Some of these include POWER and GLMPOWER of SAS/STAT, Stata, SPSS SamplePower 2.0, and G*Power. However, these software packages vary in scope, accuracy, flexibility, and interface (Thomas and Krebs 1997). SAS POWER and GLMPOWER procedures perform prospective power and sample size analysis in a flexible manner. They support t-test, tests of binomial proportions, ANOVA, bivariate and partial correlation, and linear regression model. They can both conduct sensitivity analysis and present results in plots. GLMPOWER also handles more complex linear models but unlike POWER this procedure requires an actual SAS data set. SAS Power and Sample Size (PSS) is a Web-based application that requires Web server software and Microsoft Internet Explorer. Stata .sampsi command supports t-test, tests of equality of proportions, and repeated measurements. This command can also calculate minimum sample size and statistical power using a single command.

G*Power is a free software package and is downloadable from http://www.psycho.uniduesseldorf.de/abteilungen/aap/gpower3/ (accessed 13 okt, 2008). The latest version 3 runs under Microsoft Windows XP/Vista and MacOS 10. The G*power software supports various tests including t-test, z-test, ANOVA, and chi-square test. In response to the reviewers specific comment, G*power is in no way unique compared to the other software packages. It is equally valid and comparable with other statistical methods and our choice for using G*power is based on previous experience with this software package. As stated in our manuscript, the constraints of the size of our population size and the context of the survey being uncontrollable were our considerations for using this method.

In order to estimate sample size, among other things, you need to specify the magnitude of a difference you would like to be able to detect. It is not clear from pp 7-8 what outcome (response variable, dependent variable) and magnitude were used to estimate sample size.

We thank the reviewer for raising this point. The response variable was the perceived level of preparedness of the respondents while the dependent variable was the training environment.
i.e. district teaching hospitals in the Netherlands or Curacao. (pp 6, line 11-17). We have also revised the appropriate section of the manuscript so that the magnitude (effect size and alpha) and outcome used to estimate the sample size is clear. (pp 7, line 3-15)

2. Statistical analyses. Why were parametric procedures (t test, analysis of variance, regression) used on ordinal data? Were assumptions for proper use of these procedures satisfied? Nonparametric procedures are appropriate in this situation. Descriptive statistics can be reported as medians and interquartile ranges, although with a 4-point Likert scale, it is difficult to see how an estimate of variability will be useful. I am familiar with the Central Limit Theorem. I teach it in my classes. :) Parenthetically, 30 observations is not always sufficient for the theoretical distribution of the sample mean to follow a normal distribution; this is not a sufficient criteria to be confident that the theoretical distribution of the sample mean is normally distributed. If a Mann Whitney test produced a similar result that argues that the parametric analysis is appropriate. The authors must provide explanation and justification for their analysis within the body of the paper.

As advised, we have provided an explanation and justification for the use of parametric tests in the body of paper. We believe that the appropriate place for this is in the discussion. (pp 14, line 17-23; pp15, line 1-8)

4. Bonferroni adjustment for multiple comparisons, p 10. Why was the Bonferroni procedure used to control for multiple comparisons? Although it is effective at controlling the overall error rate, its power is quite low. The advice of an expert is not sufficient justification for the use of Bonferroni. Why did this 'expert' recommend Bonferroni? Some people might consider me at least knowledgeable, if not an expert, and I might recommend something other than Bonferroni.

We agree with the reviewer’s remark that the Bonferroni procedure contributes little to our statistical analysis and in retrospect, the advice of an expert alone was not a valid justification to perform the Bonferroni procedure. We have deleted reference to the Bonferroni procedure from the manuscript.

Minor Essential Revisions
2. Questionnaires, p 8, line 15. On what basis were the 4 incorrectly filled out questionnaires excluded? Page 8, lines 15-17 do not help me understand how the [now 6] questionnaires were incorrectly filled out. Please provide more specifics in the paper.

This has been revised and elaborated (pp 8, line 7-12)

3. Percentages, Results and Tables. Is 0.1% all that meaningful? Please report percentages to the nearest integer. The values will be easier to read as integers, and you want your manuscript to be as easy to read as possible. The Tables are easier to read with rounded percentages, but there remain percentages within the body of the Results that are reported to 0.1%. These also need to be rounded.
All percentages have been rounded in the manuscript as suggested.
4. Results, influence of training on level of preparedness, p 11, lines 12-14. If you want to make a point of potential differences based on year of graduation, age, and training setting, why did you not do a post-hoc power analysis as you did for the primary outcome?
I did not see a response to this comment.

We apologise for not including a response to this comment in our previous response. We performed a Post-hoc analysis on these secondary outcome variables, and none of them revealed significant differences. We decided to leave this out of the report.

References


Myers, J. L., & Well, A. D. (2003). Research design and statistical analysis (2nd ed.).
Mahwah, NJ: Lawrence Erlbaum Associates. - Uses G*Power as a power analysis tool for ANOVA designs.


- Introduction to t-tests and power analyses for these tests that can be performed using G*Power.

- Introduction to ANOVA and non-parametric tests as well as power analyses for these tests that can be performed using G*Power.
