Improving author adherence to reporting guidelines

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Introduction

Reporting guidelines are important for ensuring clear reporting and reproducibility of published research. However, authors may find it difficult to identify the guidelines which are relevant to their study. We have been working with the EQUATOR Network and Penelope Research to develop and test an automated tool to support authors in identifying the correct reporting guidelines for their study.

The objective of this study was to determine whether providing this tool on submission to a journal improved authors’ identification of the correct reporting guidelines.

Methods

A prospective before-after study across four journals – BMC Family Practice, BMC Gastroenterology, BMC Musculoskeletal Disorders and BMC Nephrology.

The tool used was the Penelope EQUATOR Wizard [1], an automated decision tree which asks authors to provide binary information regarding their study to calculate the study type and the relevant reporting guideline [2]. The tool includes 11 commonly-used guidelines.

A question was introduced into the submission system for each of the journals linking to the EQUATOR Network website and prompting authors to follow the relevant reporting guidelines for their study type (Box 1a – the ‘before’ group). After 7 weeks the question was updated to include a link to the decision tool and a second prompt to check for relevant guidelines (Box 1b and c – the ‘after’ group).

Box 1a: Submission questions

a) Initial question introduced to the submission system

Standards of reporting

[journal name] advocates the complete and transparent reporting of research and methods. Authors are required to append the appropriate reporting guideline checklist to their manuscript on submission where applicable. Checklists are available for a number of study designs from the EQUATOR Network. See BioMed Central’s policy page for further information.

Please confirm you have included as additional files the required reporting guideline checklist (and relevant extensions) and flow diagram for your study type from the EQUATOR Network.

- I have followed the relevant reporting for my study type, and included a populated checklist with my submission
- Not applicable for my study

Box 1b and c: Submission questions

b) Altered question after introduction of decision tree tool

Standards of reporting

[journal name] advocates the complete and transparent reporting of research and methods. Authors are required to append the appropriate reporting guideline checklist to their manuscript on submission where applicable. Find the right guidelines for my study.

Please confirm you have included as additional files the required reporting guideline checklist (and relevant extensions) and flow diagram for your study type from the EQUATOR Network. See BioMed Central’s policy page for further information.

- I have followed the relevant reporting for my study type, and included a populated checklist with my submission
- Not applicable for my study

Statistical analysis

The percentage of manuscripts in each possible outcome was recorded both before and after the introduction of the decision tree tool. One-tailed Student’s t-test for proportions was used to evaluate the difference between the proportions, with \( \alpha<0.05 \) and \( \alpha=0.05 \), that there were no differences between the proportions.

Results

590 manuscripts were included in this analysis – 300 in the before cohort and 290 in the after. There were no significant differences between the two cohorts at baseline.

There were relevant reporting guidelines for 75% of manuscripts in each group. The most commonly applicable reporting guideline was STROBE, which was relevant for 35% (n=106) of manuscripts in the before cohort and 37% (n=106) of manuscripts in the after cohort.

There was a significant increase in manuscripts where authors had identified the correct reporting guidelines for their study type – 16% in the before cohort and 25% in the after cohort (Table 1). There was also a significant decrease in manuscripts where authors incorrectly stated that there were no relevant guidelines – 27% in the before cohort and 16% in the after cohort.

In addition there was an increase, though not significant, in those saying that reporting guidelines applied but not providing any details relating to reporting guidelines in the manuscript – 23% in before cohort and 29% in the after cohort.

Table 1: Numbers of manuscripts in each outcome

<table>
<thead>
<tr>
<th>Possible outcomes</th>
<th>Before</th>
<th>After</th>
<th>( \Delta )</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Correct reporting guideline</td>
<td>49 (16%)</td>
<td>73 (25%)</td>
<td>8.8%</td>
<td>0.000002</td>
</tr>
<tr>
<td>Incorrectly stated none relevant</td>
<td>72 (24%)</td>
<td>60 (21%)</td>
<td>-3%</td>
<td>0.33</td>
</tr>
<tr>
<td>Incorrectly stated reporting guideline applied, but not which</td>
<td>68 (23%)</td>
<td>85 (29%)</td>
<td>6.6%</td>
<td>0.07</td>
</tr>
<tr>
<td>Incorrectly stated not relevant</td>
<td>82 (27%)</td>
<td>46 (16%)</td>
<td>-11%</td>
<td>0.0007</td>
</tr>
<tr>
<td>Incorrectly stated reporting guideline applied, but not which</td>
<td>22 (7.3%)</td>
<td>23 (7.9%)</td>
<td>0.6%</td>
<td>0.75</td>
</tr>
</tbody>
</table>

Conclusions and next steps

- Providing authors with a tool to assist in identifying the correct reporting guidelines for their study improved the identification of the correct reporting guidelines.
- Including this as part of the submission process ensures that authors provide a response to the question, but may lead some authors to choose a response simply to complete the submission process.
- Introduction of the tool increased the numbers of manuscripts identifying reporting guidelines and fewer authors incorrectly stating that no guidelines are relevant.
- Our next step is to identify approaches to prompt authors to use the tool before submission to enable them to identify the guidelines they need at an earlier stage of manuscript preparation.

Competing interests

DS, RS and DM are all employees of BioMed Central Ltd. DS was involved in the development of the Penelope EQUATOR Wizard.

Acknowledgements

We would like to thank the EQUATOR Network and Penelope Research, particularly James Harwood.

References