Spin in research publications

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Transposition of research results

Research → COMMUNICATION → PUBLICATION → Clinical practice
Interpretation of trials’ results

• In RCTs, data should speak for themselves\(^1\)

• Scientists and sponsors are rarely neutral regarding the results of their trial
  – Delay and level of publication
  – Use of the experimental treatment in clinical practice
  – Future career and profit

• Broad latitude in writing an article
  Bias the presentation and interpretation of the results\(^2-4\)

\(^1\) Fletcher, Med Law, 2007
\(^2\) Horton, BMJ, 1995
\(^3\) Yank V, BMJ, 2007
\(^4\) Jefferson T, BMJ, 2009
Spin in published RCTs

• “Spin” as a way of reporting to convince the reader that
  – the beneficial effect (efficacy, safety) of the experimental treatment is higher than shown by the results
17 Negative trials published in the BMJ 2002-2006 (p value 0.05-0.3)

4/17: Recommendation to use the treatment in the “what this study adds” box
• To identify “spin” in a representative sample of 72 negative RCTs (i.e., \( p \geq 0.05 \)).
>40% of the reports had “spin” in at least 2 of the 3 sections of the main text
### Categories of “spin” in the conclusion

<table>
<thead>
<tr>
<th>Category</th>
<th>Count (Percentage)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Claim of equivalence or comparable effectiveness</td>
<td>6 (8%)</td>
</tr>
<tr>
<td>Particular focus on statistically significant results</td>
<td>8 (11%)</td>
</tr>
<tr>
<td>Linguistic “spin” only</td>
<td>5 (7%)</td>
</tr>
</tbody>
</table>

- **Claim of equivalence or comparable effectiveness**: 6 studies out of 72 (8%) made claims of equivalence or comparable effectiveness. There was no clear correlation between the type of study and the use of this spin technique.

- **Particular focus on statistically significant results**: 8 studies out of 72 (11%) specifically focused on statistically significant results, highlighting their importance. However, it is important to note that the term “spin” is used in a more metaphorical sense, referring to the emphasis on statistical significance.

- **Linguistic “spin” only**: 5 studies out of 72 (7%) employed linguistic “spin” only, such as phrases like: “is expected to be a very important modality in the treatment strategy” and “approached, but did not achieve conventional statistical significance.”

The data suggests that linguistic “spin” is commonly used, particularly in the context of emphasizing statistical significance, while claims of equivalence or comparable effectiveness are less frequent but still significant.
# Categories of spin in the conclusion

<table>
<thead>
<tr>
<th>Other spin in the conclusion</th>
<th>22 (31 %)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ruling out an adverse event</strong></td>
<td>3 (4%)</td>
</tr>
<tr>
<td>E.g., [...] “we <strong>have demonstrated (for the first time)</strong> that [...with the treatment...], embryo implantation is unaltered”</td>
<td></td>
</tr>
<tr>
<td><strong>Focusing on overall group assessment</strong></td>
<td>9 (13%)</td>
</tr>
<tr>
<td>E.g., “... the mean improvement [...] was <strong>clinically relevant</strong> in both treatment groups”</td>
<td></td>
</tr>
<tr>
<td><strong>Recommendation to use the treatment</strong></td>
<td>3 (4%)</td>
</tr>
<tr>
<td><strong>Focus on another objective</strong></td>
<td>3 (4%)</td>
</tr>
<tr>
<td>E.g., reporting the results as if it was not a comparative RCT</td>
<td></td>
</tr>
<tr>
<td><strong>Other</strong></td>
<td>4 (6%)</td>
</tr>
<tr>
<td>E.g., “Both [...] were shown to be superior to a historical placebo control”</td>
<td></td>
</tr>
</tbody>
</table>
High level of "spin": no acknowledgement of the negative primary outcome, no uncertainty, no recommendation for further trial.
RCTs results dissemination

Randomized controlled trials

Scientific publication, congress communication

Press releases

Lay press
Spin in press releases

Eurekalert!database
Press releases of RCTs
N=71

Related published article
N = 71

Identification of spin

Spin in press releases

Spin in the abstract conclusion of the published article
Spin in press releases

34 (47%) No spin in the published abstract conclusion (Ccl) and the PR
8 (11%) No spin in the abstract Ccl but spin added in the PR
4 (6%) Spin in the abstract Ccl deleted in the PR
12 (17%) Same spin in the abstract Ccl and the PR
13 (18%) Same spin in the abstract Ccl and the PR and new spin added

Factors associated with spin in PR$^1$:
Spin in RCT published abstract conclusion: RR = 3.8 [1.5-9.3]

Multivariate analysis: sample size, impact factor, spin in abstract conclusion, journal, results of the primary outcome
Spin in press releases

Eurekalert!database
Press releases of RCTs

Related published article

Interpretation of the results
- In favor
- Neutral
- Not in favor

Independent assessment

Interpretation of the results
- In favor
- Neutral
- Not in favor
Spin and press releases

Inadequate interpretation from press releases: 22/71 CP (31%)
- 19/22 (86%): overestimation of treatment beneficial effect
- 3/22 (14%): underestimation of treatment beneficial effect
Spin and press releases

• Factors associated with overestimation of treatment beneficial effect

<table>
<thead>
<tr>
<th></th>
<th>yes</th>
<th>no</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Specialist journal</td>
<td>45%</td>
<td>6%</td>
<td>0.002</td>
</tr>
<tr>
<td>Negative primary outcome</td>
<td>42%</td>
<td>19%</td>
<td>0.05</td>
</tr>
<tr>
<td>Sample size (&lt; 110 )</td>
<td>46%</td>
<td>8%</td>
<td>0.0004</td>
</tr>
<tr>
<td>Spin in the press release</td>
<td>55%</td>
<td>3%</td>
<td>0.0004</td>
</tr>
</tbody>
</table>

Yavchitz A, Boutron I, Bafeta A, Marroun I, Charles P, Mantz J, Ravaud P. Press Releases could induce misinterpretation of research results. submitted
Conclusions

• “Spin” in reports of RCTs are not rare

• More research in this field is needed