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Authors of clinical trials reported individual and financial conflicts of interest more frequently than institutional and nonfinancial ones: a methodological survey

Maram B. Hakoum[a], Nahla Jouni[b], Eliane A. Abou-Jaoude[c], Divina Justina Hasbani[d], Elias A. Abou-Jaoude[e], Luciane Cruz Lopes[f], Mariam Khaldieh[g], Mira Z. Hammoud[h], Mounir Al-Gibbawi[d], Sirine Anouti[i], Gordon Guyatt[j], Elie A. Akl[a,j,k,*]

[a]*Department of Internal Medicine, Clinical Research Institute, American University of Beirut Medical Center, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

[b]*Faculty of Agriculture and Food Sciences, American University of Beirut, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

[c]*Department of Internal Medicine, State University of New York at Buffalo, 12 Capen Hall, Buffalo, New York 14260-1660, USA*

[d]*Faculty of Medicine, American University of Beirut, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

[e]*Department of Biomedical Sciences, State University of New York at Buffalo, 12 Capen Hall, Buffalo, New York 14260-1660, USA*

[f]*Graduate Program in Pharmaceutical Sciences, University of Sorocaba, Rod. Raposo Tavares, km, 92.5, São Paulo 18023-000, Brazil*

[g]*Faculty of Sciences, American University of Beirut, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

[h]*Department of Psychiatry, Massachusetts General Hospital, 55 Fruit Street, Boston, Massachusetts 02144, USA*

[i]*Department of Epidemiology and Population Health, American University of Beirut, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

[j]*Department of Health Research Methods, Evidence, and Impact, McMaster University, 1200 Main St W, Hamilton, Ontario L8N 3Z5, Canada*

[k]*Department of Internal Medicine, American University of Beirut Medical Center, PO Box: 11-0236, Riad-El-Solh, Beirut 1107 2020, Lebanon*

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Abstract

Background and Objective: Conflicts of interest (COIs) are increasingly recognized as important to disclose and manage in health research. The objective of this study was to assess the reporting of both financial and nonfinancial COI by authors of randomized controlled trials published in a representative sample of clinical journals.

Methods: We searched Ovid Medline and included a random sample of 200 randomized controlled trials published in 2015 in one of the 119 Core Clinical Journals. We classified COI using a comprehensive framework that includes the following: individual COIs (financial, professional, scholarly, advocatory, personal) and institutional COIs (financial, professional, scholarly, and advocatory). We conducted descriptive and regression analyses.

Results: Of the 200 randomized controlled trials, 188 (94%) reported authors' COI disclosures that were available in the main document (92%) and as International Committee of Medical Journal Editors forms accessible online (12%). Of the 188 trials, 57% had at least one author reporting at least one COI; in all these trials, at least one author reported financial COI. Institutional COIs (11%) and nonfinancial COIs (4%) were less commonly reported. References to COI disclosure statements for editors (1%) and medical writers (0%) were seldom present. Regression analyses showed positive associations between reporting individual financial COI and higher journal impact factor (odds ratio [OR] = 1.06, 95% confidence interval [CI] = 1.02−1.10), larger number of authors (OR = 1.10, 95% CI 1.02−1.20), affiliation with an institution from a high-income country (OR = 16.75, 95% CI 3.38−82.87), and trials reporting on pharmacological interventions (OR = 2.28, 95% CI 1.13−4.62).

Conflicts of interest: E.A.A. and G.G. are authors of a number of published articles on conflicts of interest, including nonfinancial conflicts of interest. All other authors declare no conflicts of interest.

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* Corresponding author. Tel.:+961-1-350000x5490.

E-mail address: ea32@aub.edu.lb (E.A. Akl).

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Conclusion: More than half of published randomized controlled trials report that at least one author has a COI. Trial authors report financial COIs more often than nonfinancial COIs and individual COIs more frequently than institutional COIs.

Keywords: Conflict of interest; Randomized controlled trial; Bias; ICMJE; Trial author; Reporting

1. Introduction

One definition of a conflict of interest (COI) is "a financial or intellectual relationship that may impact an individual's ability to approach a scientific question with an open mind" [1]. Nonfinancial COIs (e.g., intellectual COI) are increasingly recognized as important to disclose and manage [2–9].

Although a number of studies have shown that author-industry financial ties may bias trial outcomes [10–14], evidence of underreporting of COIs by trial authors exists [15]. This may in turn affect the reporting by systematic reviews of trials' funding and COI characteristics [16,17].

Lack of clear reporting of COIs has been associated with trial misconduct. For example, and in response to allegation of misconduct in trials of rhBMP-2, Carragee et al. [18] compared 13 published peer-reviewed reports to documents of adverse events submitted to the Food and Drug Administration. They found that trial authors underreported complications in their publications, whereas their COI disclosures were "vague or internally inconsistent."

Given that COIs may introduce bias, their explicit reporting by trial authors is essential for full evaluation and for appropriate inferences. We identified 19 studies that assessed reporting of COI in clinical trials (Online Supplementary Appendix 1 at www.jclinepi.com) [10–15,19–30]. All of these studies focused on trials either published in a specialty journal or in a specific field (e.g., dentistry). Only one of the 19 studies addressed nonfinancial COI, but that study did not have a detailed classification of nonfinancial COI, and focused on randomized controlled trials (RCTs) published up to 2001, and in only one journal [12]. None of the studies addressed institutional COIs.

The objective of this study was to assess the reporting of both financial and nonfinancial COI by authors of RCTs published in a representative sample of clinical journals. That would help us address the previously identified literature gaps but also in refining and validating a framework for classifying different types of COIs in the field of health research.

2. Methods

2.1. Design overview and definitions

We used systematic methods to conduct a methodological survey of published RCTs. We defined RCTs as clinical trials published during the year 2015.

We defined a COI disclosure as reporting of the absence or presence of COI. We based our classification of COIs on a framework developed to conduct a similar study on COIs reported by authors of systematic reviews [31]. We refined the framework based on findings from that previous study (e.g., types of COI not accounted for by the original framework) and classified COI into nine types as follows (see Online Supplementary Appendix 2 at www.jclinepi.com for more details):

- Individual and institutional financial COI;
- Individual and institutional professional COI;
- Individual and institutional scholarly COI;
- Individual and institutional advocatory COI;
- Individual personal COI.

We used the word "loogly" to label any additional statement in the COI disclosure that attempts to downplay a disclosed relationship by suggesting that it is unrelated to COI, for example, "this relationship did not influence his prescription of the drug" [31]. The study involved no human participants and required no ethical approval.

2.2. Eligibility criteria

We included articles described as RCTs comparing at least two therapeutic interventions of any type in humans and published in English in 2015. We also included crossover designs and secondary reports of trials (i.e., follow-up study; post hoc analysis; interim analysis; prespecified analysis or secondary outcomes; or sub-study of a trial). We excluded nonrandomized trials, trials on basic sciences topics and nonclinical interventions, and research letters.

2.3. Search strategy

We searched in September 2015 Ovid Medline (In-Process & Other Non-Indexed Citations and Ovid MEDLINE) and limited our search to the 119 Core Clinical Journals (Abridged Index Medicus) and to the year 2015. We applied the search filter obtained from the Cochrane handbook to identify RCTs published between January and September 2015. Online Supplementary Appendix 3 at www.jclinepi.com presents the detailed search strategy.

2.4. Selection process

We randomized the selection of citations using an online sequence generator (www.random.org/sequences). We