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SYSTEMATIC REVIEW

A low proportion of systematic reviews in physical therapy are registered: a survey of 150 published systematic reviews

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KEYWORDS

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Abstract

Background: Systematic reviews (SRs) provide the best evidence about the effectiveness of healthcare interventions. Although SRs are conducted with explicit and transparent methods, discrepancies might occur between the protocol and the publication.

Objectives: To estimate the proportion of SRs of physical therapy interventions that are registered, the methodological quality of (un)registered SRs and the prevalence of outcome reporting bias in registered SRs.

Methods: A random sample of 150 SRs published in 2015 indexed on the PEDro database. We included SRs written in English, Italian, Portuguese and Spanish. The checklist for assessing the methodological quality of systematic reviews (AMSTAR) tool was used. Relative risk (RR) was calculated to explore the association between meta-analysis results and the changes in the outcomes.

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Results: Twenty-nine (19%) SRs were registered. Funding and publication in a journal with an impact factor higher than 5.0 were associated with registration. Registered SRs demonstrated significantly higher methodological quality (median=8) than unregistered SRs (median=5). Nine (31%) registered SRs demonstrated discrepancies between protocol and publication with no evidence that such discrepancies were applied to favor the statistical significance of the intervention (RR=1.16; 95% CI: 0.63-2.12).

Conclusion: A low proportion of SRs in the physical therapy field are registered. The registered SRs showed high methodological quality without evidence of outcome reporting bias. Further strategies should be implemented to encourage registration.

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Introduction

Systematic reviews (SRs) provide the best evidence to contribute to decision-making about the implementation of healthcare interventions.¹ Although these studies are conducted with explicit and transparent methods, discrepancies might occur between the protocol and the publication. For example, authors might adapt the methods so that the SR generates more positive and statistically significant results, especially because there is a tendency for some scientific journals to preferentially publish manuscripts with statistically significant results.² This may affect the validity of the results by introducing bias, such as outcome reporting bias.³⁻⁵ Outcome reporting bias is defined as the selective reporting from a subset of original outcomes, based on results.³ One of the strategies suggested to reduce this bias is the prospective registration of protocols for SRs.⁶

Protocol registration has been increasingly recommended for clinical trials⁷ and SRs.⁸ A registry for protocols of SRs was first proposed by the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) statement in 2009,⁸ which resulted in subsequent development and implementation of the International Prospective Register of Systematic Reviews (PROSPERO). A protocol provides transparency and makes explicit the hypotheses, methods and analysis of the SR that is to be conducted. According to the Cochrane Handbook for Systematic Reviews of Interventions,¹ a prospectively registered protocol reduces authors' biases by publicly documenting the *a priori* planned methods. When necessary, changes may occur between protocol to publication. However, any changes should be decided upon without calculating their effect on the results, applied as an amendment to the registered protocol at the time of the decision, and reported with explanation in the manuscript.¹

A previous study has demonstrated that nearly one-third of a sample of the SRs registered on PROSPERO show discrepancies between the primary outcomes registered in the protocol and the primary outcome reported in the publication.⁹ Other studies in several specific fields have also revealed discrepancies between protocols and published SRs.¹⁰⁻¹² As the prevalence of discrepancies differs between different fields of research, it is important to assess this issue in other disciplines, such as physical therapy. Discipline-specific data may also indicate which strategies might be most beneficial to control these discrepancies.

Launched in 1999, the Physiotherapy Evidence Database (PEDro) indexes published practice guidelines, SRs and randomized controlled trials to support an evidence-based approach in physical therapy. PEDro is one of the most complete databases for physical therapy publications.^{13,14} Pinto et al.¹⁵ analyzed 200 randomized controlled trials sampled from PEDro and identified that many: were not prospectively registered; were not registered at all; and/or had discrepancies between the registered protocol and the published report.¹⁵ However, a search of GoogleScholar using the search terms *regist-*, *systematic review*, and *physiotherapy* or *physical therapy* did not identify any studies addressing the extent of registration of SRs in physical therapy. Therefore, the primary aims of the study were: (a) to estimate the proportion of SRs of physical therapy interventions that are registered (b) to assess the methodological quality of (un)registered SRs of physical therapy interventions; and (c) to investigate whether outcome reporting bias is present in those SRs that have a registered protocol. As a secondary aim, we explored whether registration is associated with characteristics of SRs, including geographical location of the authors, impact factor of the journal, funding, and spin.

Methods

This study was a survey of SRs of physical therapy interventions. PEDro was used as the source because it is considered one of the most complete database of SRs of physical therapy interventions.¹³ From the total sample of SRs indexed in 2015, we randomly selected 150 reports using a random number function in Microsoft Excel software. The full texts were restricted to publications written in English, Italian, Portuguese and Spanish. The full-text published report of each systematic review was checked for a statement regarding registration or a registration number. If neither was identified, PROSPERO and the Cochrane Database of Systematic Reviews were searched using key terms contained in the review. Within each of these registers, the investigator searched for the citation details of the published report, including the title of the published report, any funding sources, and the first, second, and last authors. Registry entries were confirmed as being related to the published report by matching author, experimental and control interventions, review name, and country of origin. SRs for

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