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Methodological letter

PROSPERO - Reasons for its existence and why a systematic review and/or meta-analysis should be registered☆

PROSPERO – Razones de su existencia y por qué debe registrase una revisión sistemática y/o metaanálisis

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The methodological approach prior to a systematic review (SR) is an essential aspect for its correct development. The publication and registration of an SR protocol provide transparency to the review process, enabling readers to assess the endeavour made to reduce biases and evaluate their possible impact on the results obtained. The key methodological aspects related to the identification, selection, assessment and synthesis of evidence from primary studies must be clearly explained before undertaking the SR. Against this backdrop, PROSPERO (International Prospective Register of Systematic Reviews)[1] offers the opportunity to register these aspects in the most extensive SR database.

What is PROSPERO?

PROSPERO was established in February 2012, and is an international database designed for the prospective recording of SRs, covering thematic areas that include, among others, clinical, surgical and public health disciplines, provided that there is a health outcome. Its existence is based on the need to prevent duplicates, increase transparency in research and serve as a starting point to guarantee SR rigour and quality. To this end, PROSPERO facilitates the comparison of the planned methodology with that carried out and completed. Access is free (https://www.crd.york.ac.uk/prospero/) both for registering an SR and for accessing the listing. The University of York Centre for Reviews and Dissemination is responsible for its administration, and funding is supplied by the National Institute for Health and Care Research in the United Kingdom.[2]

How can an SR be registered?

Registration in PROSPERO involves completing a form with information on the design and methodological plan of the SR. Table 1 shows the steps to follow. Assessment of the records ensures the correct completion of the information, although a peer review of the methodology quality is not performed. The registration data can be updated, leaving all changes recorded and displayed in the public domain. Each registration has a unique identification number, which can be cited in scientific publications to provide transparency to the SR development process, in accordance with the PRISMA

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Table 1 – Steps to follow to register a systematic review in PROSPERO (with or without meta-analysis).

Go to www.crd.york.ac.uk/PROSPERO
Free access for registering and consultation
1. Create an account and register in PROSPERO
2. Click on ''Register your review now''
3. Fill in the form. Guidance is available on each item to be completed
4. Save information when finished. It allows you to save half-completed forms
5. ''My Prospero records'' lists the records and versions that have been made
6. You will receive a confirmation email of the submission
7. You will receive confirmation of registration acceptance within 4 days, or a request for clarifications or non-acceptance of the proposal with stated reasons
8. The accepted registration is indexed with a MeSH term
9. Major changes to the proposed methodology must be recorded
10. Completion and publication of the SR must be recorded
11. All registrations are permanent and have a unique registration number

(Preferred Reporting Items for Systematic Reviews and Meta-Analyses)[3] guidelines.[4]

Positive and negative aspects of PROSPERO

We would mainly highlight three positive aspects:

1) The registry provides information on the methods originally planned for carrying out the SR, and is particularly valuable for non-Cochrane SRs, which are considered best practices in terms of the quality of their implementation and the presentation of the information. The eligibility criteria of primary studies, the instruments used to evaluate their methodological quality, and the outcome that is evaluated, etc., is made known. Some studies show that fundamental methodological aspects of the SRs that are published are being registered, but not in their entirety. One 2018 study that evaluated the reporting of 19 PRISMA-P items in a random sample of 439 SR records identified that the eligibility criteria were reported correctly at 89%, whilst the correct reporting of the rest of the items was under 50%.[3] Regarding the primary outcomes, another study[5] showed that, of 96 published SRs, 32% had discrepancies regarding the main outcome, 39% had not made this explicit in the registry and 6% had not declared any.
2) Another positive aspect is the potential of PROSPERO to prevent SR duplication. The researcher who wants to carry out a SR must explore whether other SRs already exist or are being undertaken. For example, during the COVID-19 pandemic, 1054 SRs were registered, but 138 (13.1%) corresponded to duplicate SRs. After investigating the reason why the researchers continued with these SRs, 41 alleged differences in the research question or the intended analysis.[1]
3) Lastly, the data reported in PROSPERO can be useful to estimate the resources required for SR development. An analysis of 195 SRs that had an associated publication showed an average of 5 authors and 67.3 weeks for the execution of an SR.[6] These data confirm the demand in time and human resources that the development of an SR requires. Currently, thanks to the development of language processing and information extraction algorithms, debate is kicking off regarding the benefits that artificial intelligence could provide to alleviate workload and speed up some points of SR execution.[7]

With regards to negative aspects, some researchers have expressed their concern about the possibility of copying SRs, or that even if some SRs are registered, they will never be completed and this affects the interest of other researchers. Although registration of SRs has increased significantly since PROSPERO's inception,[8] further work needs to be done to explore the extent to which published systematic reviews adhere to planned and recorded methods.

Conclusions

PROSPERO is a valuable tool for optimising rigour in SR development. However, the quality of study execution transcends the objectives of the registry and is the responsibility of the research teams.

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