Abstract

Reproducibility and Transparency Practices in a Sample of Nutrition- or Diet-Related Randomised Controlled Trial Publications: A Cross-Sectional Meta-Research †

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Abstract: Background and objectives: Journal articles describing randomised controlled trials (RCTs) are not optimally reported, often missing crucial details that ensure transparency and reproducibility. We aimed to estimate the frequency of reproducible and transparent research practices in a sample of recently published nutrition- or diet-related RCTs. Methods: We conducted a meta-research of nutrition- or diet-related RCTs published in journals indexed on Pubmed. We used a validated search strategy to identify eligible RCTs published between June 2021 and June 2022. Two reviewers independently screened the records retrieved by reading the titles and abstracts. Eligibility was confirmed after full text inspection. The data on the general aspects of the included RCT publications (participants, intervention, controls, outcomes, and study design) were extracted into RedCap. Research transparency and reproducibility practices included study registration, statistical analysis plan, data and analyses code sharing, conflicts of interest (CoI), authorship statements (CreditT), and whether the publication was open access. The relative frequencies for all variables were calculated, and comparisons were made between nutritional supplementation RCTs and those with other nutrition- or diet-related interventions. This meta-research is registered in the Open Science Framework (doi: 10.17605/OSF.IO/BF47G). Results: Most RCTs were single-centered (88%) with a parallel design (71%). The participants were most frequently adults (46%) or adults and elderly (23%), with some clinical condition (61%), receiving nutritional supplementation (55%) compared to other active intervention (44%) or placebo (40%). The outcomes most frequently studied were clinical (44%) or nutritional status (7%) and the frequency or severity of diseases (11%). Most RCTs were registered (81%) but did not present a statistical analysis plan (97%), data (51%), or code (97%) sharing statement. CoI statements were present in 98% RCTs, with 75% declaring no CoI. CreditT was identified in 61% RCTs and 85% were not open access publications. The practices of research transparency and reproducibility did not differ between supplementation and other nutrition- or diet-related RCTs. Conclusions: In a random sample of recently published nutrition- or diet-related RCTs, the frequency of practices of transparency and reproducibility related to statistical analysis plan and the availability of materials and code sharing are not satisfactory, while study registration and CoI were reported in most publications.

Keywords: nutritional interventions; randomised controlled trials; meta-research

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