

ORIGINAL ARTICLE

Relationships between abstract features and methodological quality explained variations of social media activity derived from systematic reviews about psoriasis interventions

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Accepted 15 May 2018; Published online 25 May 2018

Abstract

Objectives: The aim of this study was to describe the relationship among abstract structure, readability, and completeness, and how these features may influence social media activity and bibliometric results, considering systematic reviews (SRs) about interventions in psoriasis classified by methodological quality.

Study Design and Setting: Systematic literature searches about psoriasis interventions were undertaken on relevant databases. For each review, methodological quality was evaluated using the assessing the methodological quality of systematic reviews tool. Abstract extension, structure, readability, and quality and completeness of reporting were analyzed. Social media activity, which consider Twitter and Facebook mention counts, as well as Mendeley readers and Google scholar citations were obtained for each article. Analyses were conducted to describe any potential influence of abstract characteristics on review's social media diffusion.

Results: We classified 139 intervention SRs as displaying high/moderate/low methodological quality. We observed that abstract readability of SRs has been maintained high for last 20 years, although there are some differences based on their methodological quality. Free format abstracts were most sensitive to the increase of text readability as compared with more structured abstracts (Introduction, Methods, Results, and Discussion or eight headings), yielding opposite effects on their quality and completeness depending on the methodological quality: a worsening in low quality reviews and an improvement in those of high quality. Both readability indices and preferred reporting items of systematic reviews and meta-analyses for Abstract total scores showed an inverse relationship with social media activity and bibliometric results in high methodological quality reviews but not in those of lower quality.

Conclusion: Our results suggest that increasing abstract readability must be specially considered when writing free format summaries of high-quality reviews because this fact correlates with an improvement of their completeness and quality, and this may help to achieve broader social media visibility and article usage. © 2018 Elsevier Inc. All rights reserved.

Keywords: Psoriasis; Systematic reviews; Methodological quality; AMSTAR; PRISMA for abstract; Abstract readability; Altmetrics

Funding sources: This work was supported, in part, by project ICI1400136 to J.R., integrated into the National Plan of R+D+I 2008–2011 and cofinanced by the ISCIII-Subdirección General de Evaluación and European Regional Development Fund (ERDF), by project PIN-0316-2017 of the Consejería de Salud, Junta de Andalucía (Spain) to J.R., and by grant PP13/009 of Plan Propio de movilidad para investigadores del Instituto Maimonides de Investigación Biomédica de Córdoba (IMIBIC). No funding was received from any pharmaceutical company.

Conflict of Interest: F.G-G has received honoraria for research from Pfizer and for lecturing from AbbVie, Janssen-Cilag and Novartis; J.R. has received

honoraria for lecturing and grants for research from Pfizer, honoraria for lecturing from Janssen-Cilag and Novartis, and other financial benefits from AbbVie and Novartis; A.V.G-N. has received honoraria for lecturing from Pfizer, Novartis, AbbVie, and Janssen-Cilag, and other financial benefits from AbbVie, Novartis, and Janssen-Cilag. M.A-L., J.R., F.G-G., and B.I-T. are members of the Cochrane Bias Methods Group and Skin Group. J.L.S-C., P.A-M., B.M-L., P.J.C-F., and M.G-P. have no disclosures.

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What is new?**Key findings**

- The classical strategies are changing and scientists and clinics are increasingly using online social networks to both promote their work and help article selection for future reading and citing.
- This is the first study to explore the relationship between abstract characteristics (structure, readability, quality, and completeness) and altmetrics of psoriasis interventions systematic reviews classified by methodological quality.

What this adds to what was known?

- Results suggest that when abstracts of high methodological quality reviews are nonstructured, low readable, and of poor reporting quality and completeness, the reviews are less mentioned in social media and less cited.

What is the implication and what should change now?

- We recommend to increase abstract readability specially when writing free format summaries of high quality reviews.

1. Introduction

Psoriasis is a chronic disease, with moderate and severe forms associated with significant comorbidity, impaired quality of life, and high direct and indirect costs [1]. New therapies have been developed during the last decade that have been increasingly effective, but with potentially significant more adverse side effects and higher costs, which puts patients at risk and calls into question the sustainability of health systems [2,3]. Therefore, therapeutic decision-making processes about appropriate psoriasis interventions should be based on the best evidence [4,5].

Systematic reviews (SRs) and meta-analyses (MAs), the standard for evidence synthesis of primary studies, have become extremely useful to support decision-making processes in the context of health systems [6]. Physicians, pharmacists, hospital committees, and regulatory organizations make recommendations concerning diagnostic, prognostic, and/or therapeutic interventions using these synthesis documents, and it is desirable that they would be supported by reviews of the highest scientific standards [7]. However it is not easy for these professionals to select those reviews of high methodological quality and low risk of bias, due to the large number of reviews published to date, which is beyond the capacity of almost any researcher to evaluate [8].

Reporting results is a fundamental part of the scientific process, facilitating both the dissemination of knowledge

and the reproducibility of science. The classical strategies are changing, and scientist and clinics are increasingly using online social networks to both promote their work and help article selection for future reading and citing. Ruano et al. recently failed to observe a relationship between the count of tweets because an SR about psoriasis intervention is published and its methodological quality evaluated using assessing the methodological quality of systematic reviews (AMSTARs) tool [9]. Therefore, there seems to be a lack of a direct connection between scientific quality and social media activity related with this group of reviews. Beyond nonscientific factors such as the importance of readers' attitudes and skills, social media activity would be also influenced by several abstract features and lesser by the quality of the full article, which in many cases people who use social media do not even read. Gómez-García et al. have recently demonstrated that the methodological quality and the risk of bias of reviews may be predicted by analyzing abstract information, extension, and structure [10]. In this study, mean total preferred reporting items of systematic reviews and meta-analyses (PRISMA) extension for Abstracts (PRISMA-A) score was significantly higher for high methodological quality SRs than for moderate and low methodological quality reviews, and abstract extension (word count > 300) and format (eight headings vs. IMRAD [Introduction, Methods, Results, and Discussion] and free formats) were univariate predictors of abstract quality and completeness.

Clarity and accuracy of reporting are also fundamental to efficiently communicate scientific results. Therefore, in addition to the content and structure, readability may be an important factor to properly distribute messages with abstract key findings through the social network. The clarity of written language can be quantified using readability formulas, which estimate how understandable written texts are. Plavn-Sigray et al. have observed that the readability of scientific abstracts correlates with readability of full texts and is decreasing over time [11]. Indeed, lower readability implies less accessibility, particularly for nonspecialists, such as journalists, policy-makers, and the wider public. Leonhardt et al. have recently found that more readable posts on Twitter are associated with significantly more "favorites", "re-tweets", and "replies" [12].

A persistent issue in academic research centers on whether the knowledge published by researchers reaches and is understood by those it could benefit: other researchers, but also nonscientific consumers such as journalists, associations of patients, pharmaceutical companies, etc. Abstracts are often the first, and sometimes the only, point of contact between authors and readers. It would be desirable to implement new strategies that help authors to better communicate their results to a more diverse audience that is increasing social media network usage. So we thought that it would be interesting to analyze if differences in abstract features may influence results diffusion when SRs of varying methodological quality are compared.

To our knowledge, this is the first study that aims to describe the relationship between complete abstract

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