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### Prospective Protocol Registration Should Be Required for Systematic Reviews in Dermatology Literature

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## Prospective Protocol Registration Should Be Required for Systematic Reviews in Dermatology Literature

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**Key words:** Systematic Review, Dermatology, Registration, PROSPERO, PRISMA.

*To the Editor:*

According to Cochrane Library, a systematic review (SR) involves a detailed study which identifies, appraises, and synthesizes all relevant data from included studies<sup>1</sup>. Their purpose is to minimize bias, while providing reliable findings to make critical decisions. Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) consists of a 27-item checklist and a four-phase flow diagram to ensure the transparent and complete reporting of systematic reviews and meta-analyses. However, to avoid unplanned duplication of SRs addressing the same question, an important step in PRISMA guidelines is to register the topic and protocol for the SR in a database such as the Prospective Registration of Systematic Reviews (PROSPERO), the largest international prospective register of systematic reviews. In theory, this also allows for accurate reproducibility of systematic reviews. Recently, the authors of this study undertook a SR, and during the data collection phase another SR was published on the same topic, despite not being registered on PROSPERO. As a result, this review was conducted to identify how often SRs published in dermatology journals are registered on PROSPERO.

A literature search was conducted in PubMed/MEDLINE using the search terms "Systematic Review and Dermatology". Since PROSPERO registration was introduced in 2011, only systematic reviews published in dermatology journals after 2010 were included in this study. Of 3,153 articles, only 1,492 articles met the above inclusion criteria. PROSPERO registration was verified by searching the PROSPERO database for the first authors' name and keywords from the published article. Additionally, author guidelines of 80 dermatology journals listed on Journal Citation Reports were examined

to determine whether SRs are explicitly mentioned, and whether PROSPERO or PRISMA checklists are required, encouraged, or not mentioned.

Our data on journal's author guidelines showed that though 38.8% of journals mentioned SRs in their author guidelines, only 2.5% (n=2) required PROSPERO registration and 6.3% (n=5) recommended PROSPERO registration (Figure 1). Only two dermatology journals mentioned SRs in their author guidelines, required PROSPERO registration, and required submission of PRISMA checklist. Further analysis revealed that only 13.7% (n=204/1,492) of published SRs were registered in PROSPERO. Only four dermatology journals had more than 10 published SRs registered in PROSPERO. Lastly, on average, the percentage of PROSPERO registered SRs increased from 3% (n= 16/476) between 2011 to 2015 to 13% (n= 128/956) between 2016 to 2020. Surprisingly, 100% (n=60) of published SRs were registered in PROSPERO in 2021.

The number of published SRs increased from about 80 a year in the late 1980s to more than 8000 in 2016<sup>2</sup>. This increase is likely due to the explosion of biomedical knowledge, globalization of output, and usefulness of SRs to synthesize ever-growing amounts of evidence. Similarly, with development of guidelines and checklist such as PRISMA, systematic review protocol registration has increased over time in the dermatology literature. However, still only two journals required PROSPERO registration, probably at least partially accounting for only 13.7% of SRs published in dermatology journals being registered in PROSPERO. Similarly, a previous study found only 15.2% of published SRs had been registered in PROSPERO<sup>3</sup>. Despite PROSPERO being the largest protocol registrar, it should be noted there are other protocol registrars as well. Moreover, PROSPERO is by no means the official registrar

group and nor do authors of this study advocate for any particular registrar for SR protocols. Our experience, and data also highlights the need for increased mention of SRs in author guidelines and submission of required PRISMA checklist, which may improve the quality of SRs<sup>4</sup>.

Conducting SRs is time consuming and requires high effort but, nonetheless, remains important in decision making. Therefore, required SR protocol registration can help optimize resources, time, and efforts of research teams rather than committing unplanned duplication. Lastly, lack of protocol registration raises the question of reproducibility of many published SRs as it does not allow for comparison of the completed review with what was planned in the protocol at inception. Standardization would allow for better comparisons between SRs.

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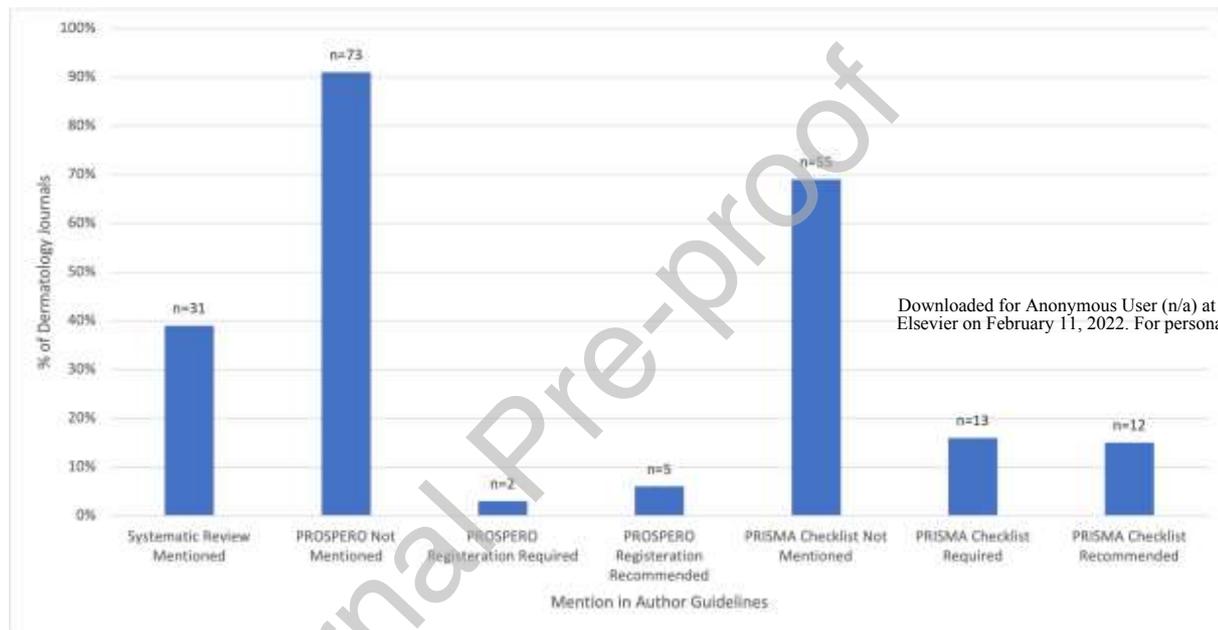
Our analysis may be limited as only Journal Citation Reports-indexed dermatology journals were included in this study and only PROSPERO was searched for SR registration. Nevertheless, our study highlights the paucity of PROSPERO registered systematic reviews in dermatology journals, as well as the need to require SR protocol registration, and require submission of PRISMA checklist.

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Figure Legend:

Figure 1. Comparison of percentage of dermatology journals (n=80) that mentioned systematic reviews in their guidelines. Comparison of dermatology journals based on whether they required, recommended, or did not mention PROSPERO registration or PRISMA checklist for systematic reviews.



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