

Scientific literature in the field of diabetic neuropathy: a systematic review of publications from 1900 to 2021

Aims: The first objective of this systematic review was to assess a global overview of publications about diabetic neuropathy over the last 120 years, in particular regarding its epidemiology, diagnostic criteria, therapeutic strategies, and the gaps in knowledge.

Methods: This analysis was performed through the methodological approaches of the New Quality and Quantity Indices in Science (NewQIS) bibliometric platform based on the Web of Science Core Collection (WoS) database. The search terms were evaluated through the Medical Subject Heading (MeSH) Thesaurus to consider all possible synonyms for the term Diabetic Neuropathy. Only original articles published between 1900 and 2021 were included. The analysis considered absolute figures for articles, citations and countries but also the relative values considering the relationship of the article numbers to socioeconomic values as well as the economic power of the countries of publication (considering the Gross Domestic Product, GDP). Furthermore, the most cited articles were detected.

Results: A total of 5.411 articles were identified using these methods, with a recent increased rate of publication considering that 31% of these works (n. 1706) were published between 2015 and 2021. Principal investigated fields were peripheral neuropathy, epidemiology, diagnostic criteria, risk factors, and pain. Authors from USA, UK, China, Germany and Japan had the highest scientific productivity, but when considering The Density-Equalizing Mapping Projections (DEMP) analysis uncovered a distinctive distortion of the world map, with a significant concentration of publications in Northern America and Western Europe. To consider the association between the number of publications and the population size of each country it was evaluated the Relative Publication Output per capita (R_{POP}) and also GDP was evaluated. In this analysis, Denmark emerged as the most active country, followed by Qatar and UK. Furthermore, a total of 762 international collaborations were identified.

Conclusions: In conclusion, this analysis showed an increased scientific interest in the field of diabetic neuropathy over the last years probably related to the increased incidence of diabetes and its complications all over the world. It is necessary to continue and increase this work to better explore the pathophysiology, the possible preventive and therapeutic approach, and the epidemiology to better manage this disabling complication. International collaborations could be an effective approach to achieve this goal. These results could be useful to outline future research priorities, to better target funding with the primary objective to decrease the burden of diabetic neuropathy.

Comments. This review underlines geographical and temporal distribution of publications on diabetic neuropathy over the last 120 years with particular attention to the gaps of knowledge to better direct future research and funding in particular considering the social, economic, epidemiological impact of diabetic neuropathy and its influence on morbidity and quality of life. As reported also from the authors, principal limitation is the possibility to miss relevant articles using these searching criteria and consequently to obtain partial results.

Nevertheless, the scientific community has to face the challenge that emerged and the principal objective for the future will be to investigate possible preventive and therapeutic approaches for diabetic neuropathy. The imbalance in research activity across geographical regions - well described in this study - raises the issue of funding for research and a collaborative approach of diverse regions on a global scale.

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Reference. Tavakoli M, Klingelhöfer D, Fadavi H, Groneberg DA. The landscape of global research on diabetic neuropathy. *Front Endocrinol (Lausanne)*. 2023 Nov 7;14:1220896. doi: 10.3389/fendo.2023.1220896. PMID: 38034004; PMCID: PMC10686065.

<https://www.frontiersin.org/articles/10.3389/fendo.2023.1220896/full>