Cukurova Medical Journal
ÇUKUROVA ÜNİVERSİTESİ TIP FAKÜLTESİ

Cukurova Med J 2024;49(3):624-631
DOI: 10.17826/cumj.1421402

RESEARCH

Scientific interest in rehabilitation: a bibliometric analysis

Rehabilitasyona bilimsel ilgi: bibliyometrik analiz

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Abstract

Purpose: It is aimed to conduct bibliometric analysis to explore scientific interest in rehabilitation. The date of bibliometric analysis was 17.01.2023, and a total of 410.000 documents from all times to this date were analyzed.

Materials and Methods: The data for this study was obtained from Scopus, a multidisciplinary database, for the period of sixty-two years (1960-2022) using the keyword 'rehabilitation'. Our bibliometric analysis includes articles, authors, subject area, document types, countries, languages, affiliations, publication years, citations, and number of citations. Since Scopus allows the download of 2000 data at a time, citation reports after 2021 were examined.

Results: 109,138 of 410.000 articles were in all open Access and 342.918 were in English. When we look at the distribution of the number of articles by year, there were 10,095 articles in 2023, 27,615 articles in 2022, 25,594 articles in 2021, and 22,718 articles in 2020. Documents types were; article (72.5%), conference paper (9.9%), review (9.8%), book chapter (2.3%), and editorial (1.7%). Documents according to subject areas were as follows; Medicine (N=282.301), Health Professions (N=66,434), Engineering (N=53,704), Neuroscience (N=26,016), Computer Science (N=25,326), Social Sciences (N=23,080), Psychology (N=21,384), Nursing (N=19.481). A total of 199 cited documents have been reached. Sixty-two in 2023; 132 in 2022; 5 in 2021. The h index was 4.

Conclusion: We see that 'Rehabilitation' is increasingly becoming an area of interest for many different disciplines, as developing technology and quality of life in the field of health are at the forefront of treatment approaches.

Keywords:. scientific interest, rehabilitation, bibliometric analysis

Öz

Amaç: Rehabilitasyona bilimsel ilgiyi araştırmak için bibliyometrik analiz yapmak amaçlandı. Bibliyometrik analiz tarihi 17.01.2023 olup, bu tarihe kadar tüm zamanlardan toplam 410.000 belge analiz edilmiştir.

Gereç ve Yöntem: Bu çalışmanın verileri multidisipliner bir veri tabanı olan Scopus'tan altmış iki yıllık (1960-2022) bir sürede 'rehabilitasyon' anahtar kelimesi kullanılarak elde edildi. Bibliyometrik analizimiz makaleleri, yazarları, konu alanını, belge türlerini, ülkeleri, dilleri, kurumları, yayın yıllarını, atıfları ve atıf sayısını içerir. Scopus aynı anda 2000 verinin indirilmesine izin verdiği için 2021 sonrası atıf raporları incelendi.

Bulgular: 410.000 makalenin 109.138'i tamamen açık erişimde, 342.918'i İngilizce idi. Makale sayılarının yıllara göre dağılımına bakıldığında 2023 yılında 10.095, 2022 yılında 27.615, 2021 yılında 25.594, 2020 yılında ise 22.718 yazı bulunmaktadır. Belge türleri; makale (%72,5), konferans makalesi (%9,9), inceleme (%9,8), kitap bölümü (%2,3) ve editoryal (%1,7) idi. Konu alanlarına göre belgeler şu şekildeydi; Tıp (N=282.301), Sağlık Meslekleri (N=66.434), Mühendislik (N=53.704), Nörobilim (N=26.016), Bilgisayar Bilimleri (N=25.326), Sosyal Bilimler (N=23.080), Psikoloji (N=21.384), Hemşirelik (N=19.481). Toplam 199 alıntı belgeye ulaşıldı. 2023'te 62; 2022'de 132; 2021'de 5. H indeksi=4 idi.

Sonuç: Sağlık alanında gelişen teknoloji ve yaşam kalitesinin tedavi yaklaşımlarının başında yer almasıyla 'Rehabilitasyon'un pek çok farklı disiplinler için giderek ilgi alanı olduğu görüyoruz.

Anahtar kelimeler: bilimsel ilgi, bibliyometrik analiz, rehabilitasyon,

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Received: 17.01.2024 Accepted: 24.08.2024

INTRODUCTION

Rehabilitation means the act of restoring a person to a healthy or normal life through training and therapy. It also means rescuing a person from an uncomfortable situation outside the field of health and restoring them to their former priorities. According to the World Health Organization (WHO); Rehabilitation is an essential part of universal health coverage along with the promotion of good health, prevention of disease, treatment, and palliative care. Rehabilitation is defined as "a set of interventions designed to optimize functioning and reduce disability in individuals with health conditions in interaction with their environment"[1].

Rehabilitation is aimed at benefiting from life's basic health score, individual well-being, and quality of life. It has physical, psychological, and social components. The main goal of rehabilitation is to increase the quality of life of individuals by improving their existing functionality. As a result of the advancement of technology and developments in the field of health, the elderly population is increasing in the world. Advanced old age brings with it serious morbidity and mortality rates[2-4]. Physiatrists play an important role in the rehabilitation of old age. Apart from old age, we resort to rehabilitation for many acute-chronic systemic diseases. These are neurological diseases, cardiovascular diseases, pulmonary system, rheumatic diseases, traumatic brain injury, orthopedic injuries, etc[5-8].

Bibliometrics examines publication patterns by quantitative analysis and statistics. Bibliometrics can be descriptive or citation analysis. Numbers of publications over the years can be useful for making some comparisons, and citation analysis allows us to look at the impact on other articles by showing how often they are cited. Citation analysis can also show which journals, institutions, and countries have a high influence in different research areas. Through bibliometric analysis, an inclusive perspective is provided to studies in various fields. In the field of medicine, we see bibliometric analyses in the areas of musculoskeletal, cardiopulmonary, pain, and neurological rehabilitation areas[9-12].

Here, we aimed to evaluate the topic of 'rehabilitation', which concerns many disciplines, objectively with a holistic point of view, by revealing the studies done at all times with bibliometric analysis. With this analysis, we aimed to lead new studies and raise awareness by comparing research in different countries, authors, and institutions all around the world.

MATERIALS AND METHODS

Study design

The study did not include humans or animals, and institutional ethics committee approval was not obtained because it was based on a retrospective analysis of existing data. Elsevier's Scopus bibliometric analysis was used in this study. A systematic evaluation of the documents resulted in comprehensive use of the Scopus database from the beginning to the present time (17 January 2023).

The term 'rehabilitation' were searched in the Elsevier Scopus database for the entire time period (1960 to 2022 to present). Scopus is a database of abstracts and citations for scientific content in different disciplines.

The analysis strategy was done by inputting the keyword 'rehabilitation' in the medical subject headings (MeSH) major field. Our bibliometric analysis includes articles, authors, subject area, document types, countries, languages, affiliations, publication years, citations, number of citations. The date of bibliometric analysis was 17.01.2023, all data from all times to this date were analyzed. Scopus allows a maximum of 2000 data to be downloaded as reports, so we included the years 2021-2023 in the citations.

Statistical analysis

A total of 410.000 documents were analyzed. Qualitative and quantitative research is based on the number of documents. As the reporting type, we used CSV Excel (Microsoft Excel 2010) reporting, which is the most frequently used in bibliometric research. We also benefited from Scopus visual graphical data. The data in the tables were converted to absolute numerics (percentage and frequency).

RESULTS

Of the 410.000 articles, 109.138 were all open Access and 342.918 were in English. When we look at the distribution of the number of articles by year, there were 10.095 articles in 2023, 27.615 articles in 2022, 25.594 articles in 2021, and 22.718 articles in 2020 (Figure 1a,b). When we look at the graph, we see that

rehabilitation publications increased gradually in the late 1950s.

Documents types were as listed; article (N=297.073, 72.5%), conference paper (N=40.393, 9.9%), Review (N=40.221, 9.8%), Book Chapter (N=9.354, 2.3%), Editorial (N=6.923, 1.7%), Note (1.1%), Letter (1.0%), Short survey (0.8%), Book (0.4%) and Conference Review (0.3%). (Figure 2). The top authors in rehabilitation area were as follows; Stucki G. (N=308, Switzerland), Heinemann AW. (N=303, United States, US), Negrini S. (N=268, Belgium), Grace SL. (N=231, Canada) and Anon (N=229) (Figure 3).

Documents by subject area were as follows; Medicine (N=282.301), Health Professions (N=66.434), Engineering (N=53.704), Neuroscience (N=26.016), Computer Science (N=25.326), Social Sciences (N=23.080), Psychology (N=21.384) and Nursing (N=19.481) (Figure 4). When we look at the the documents by country/region distribution; the USA (n=104.027), United Kingdom (30.164), Germany (N=24.350), China (N=22.579), and Canada (N=21.105) are at the top (Figure 5). The institutional distribution of documents is summarized in Figure 6. Canada Toronto University and the United States VA Medical Center are in the first place. Harvard Medical School and The University of Sydney come next.

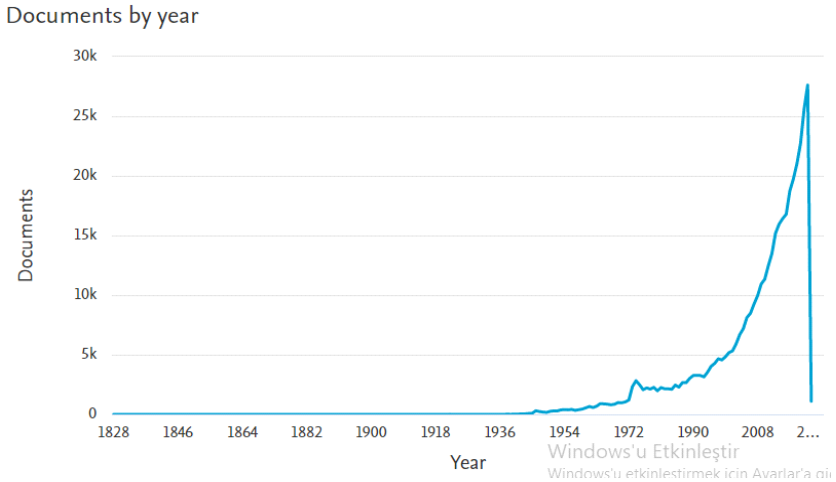

Figure 1a. Documents by year

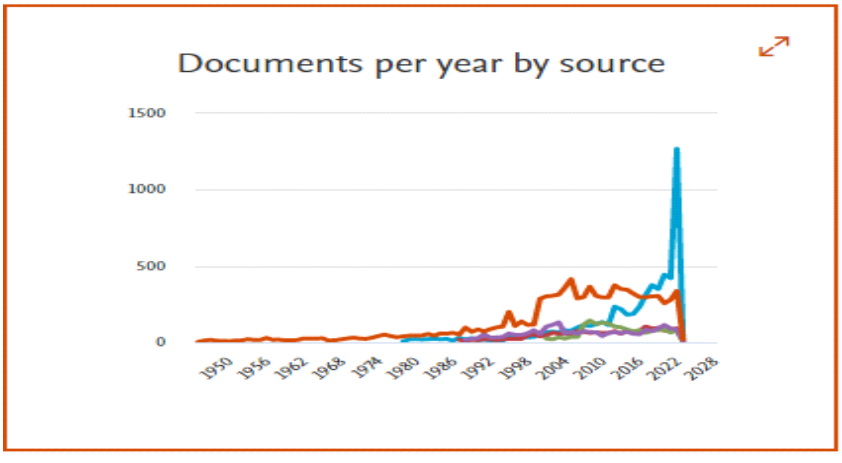

Figure 1b. Documents by years by source

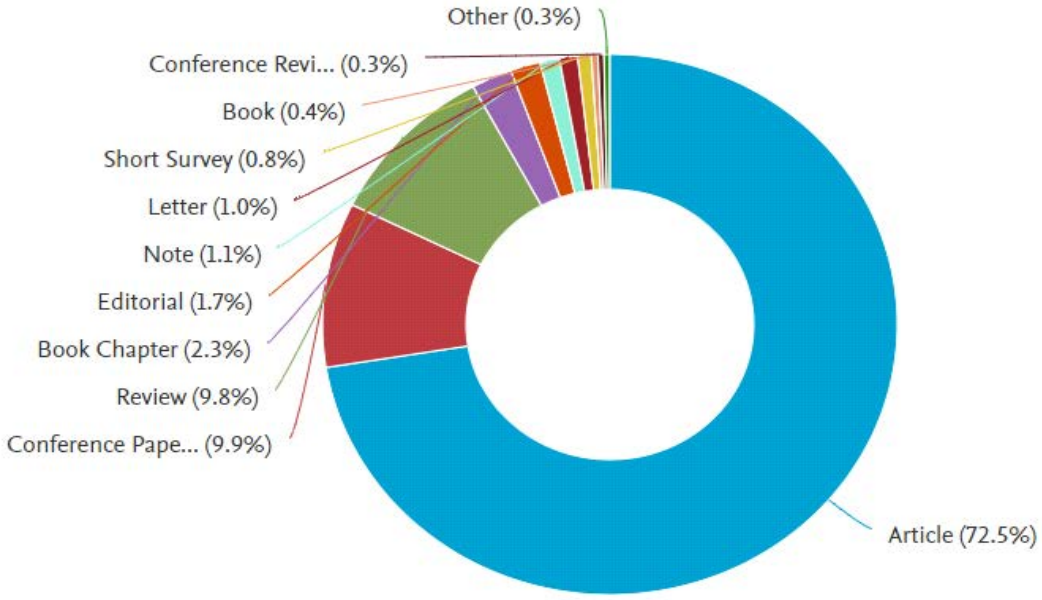

Figure 2. Documents by type

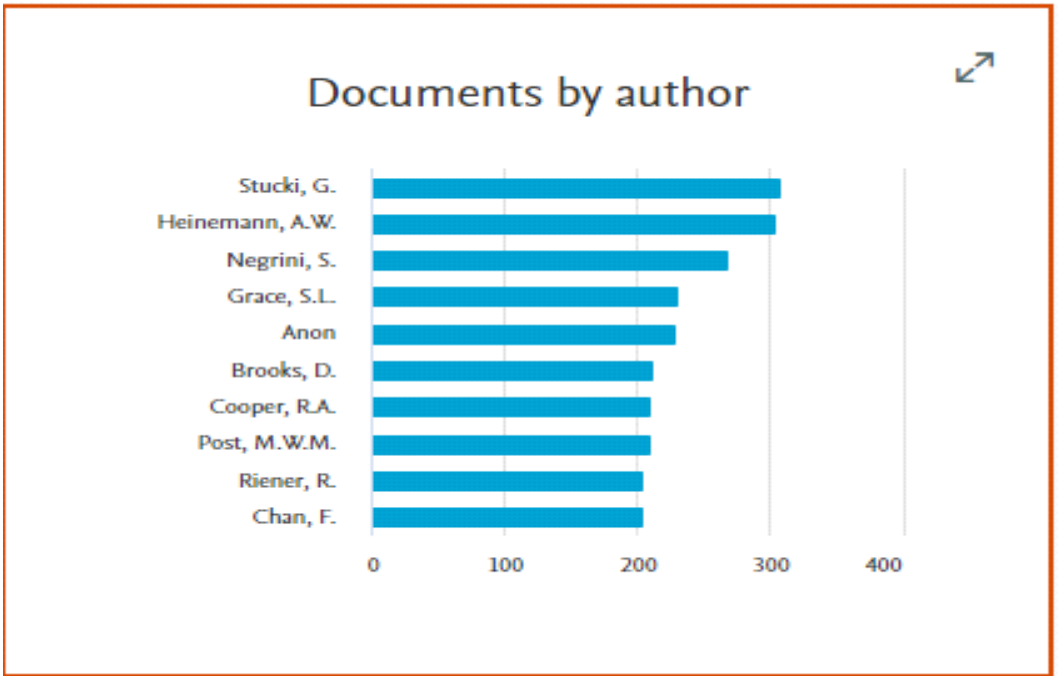

Figure 3. Top authors in rehabilitation area.

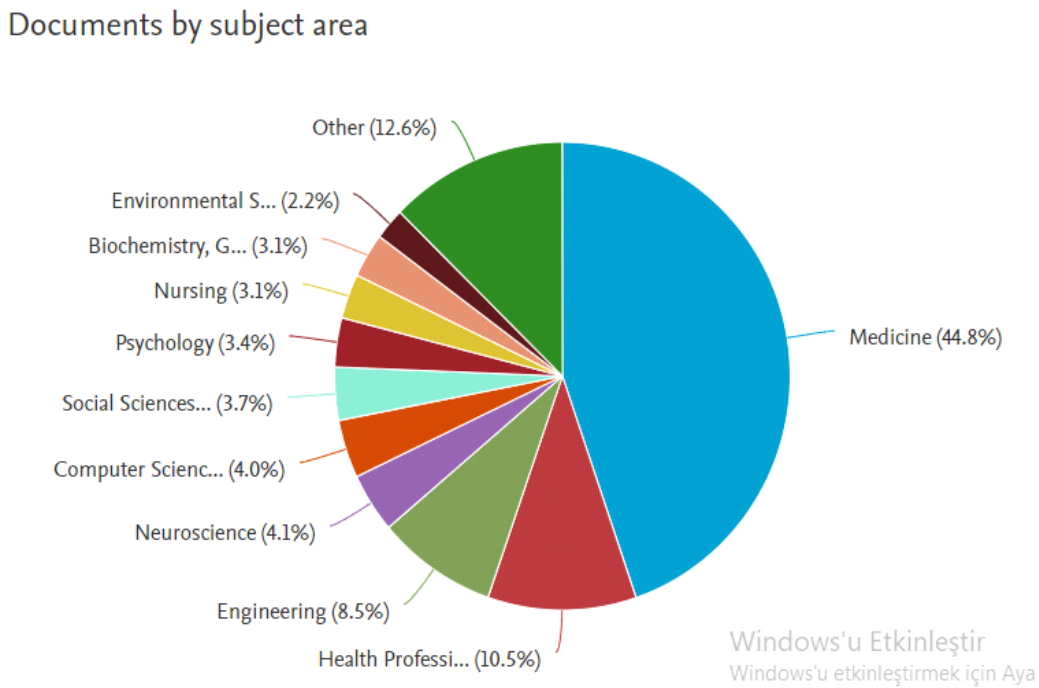

Figure 4. Documents by subject area.

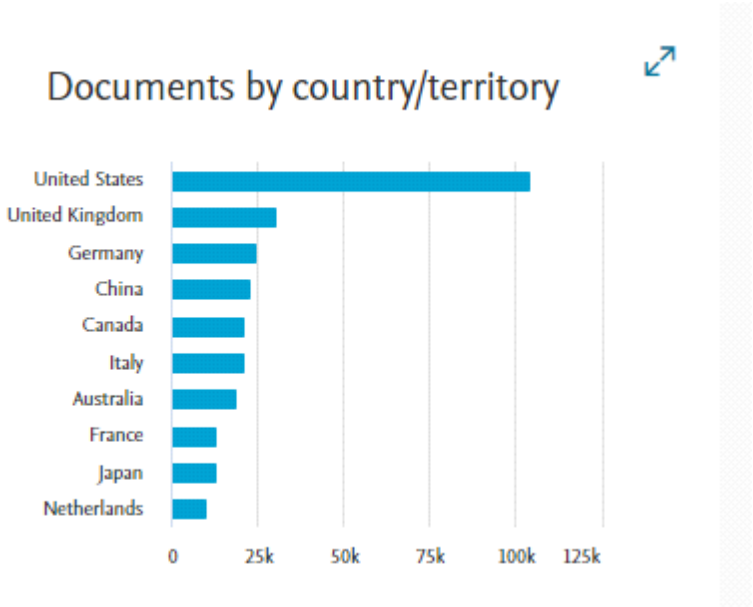

Figure 5. Documents by country/territory

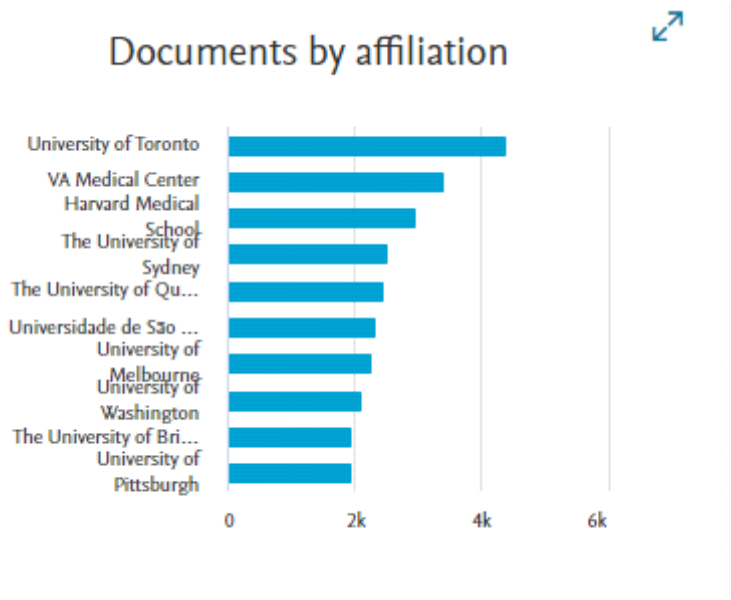

Figure 6. Documents by affiliation.

Citation reports after the 2021 year were examined, as Scopus allows only the download of 2000 data at once. A total of 199 cited documents have been reported. Sixty-two are in 2023; 132 are in 2022; The citation reports by years are shown in Figure 7a, and the H index (H index=4) of the documents is shown in Figure 7b.

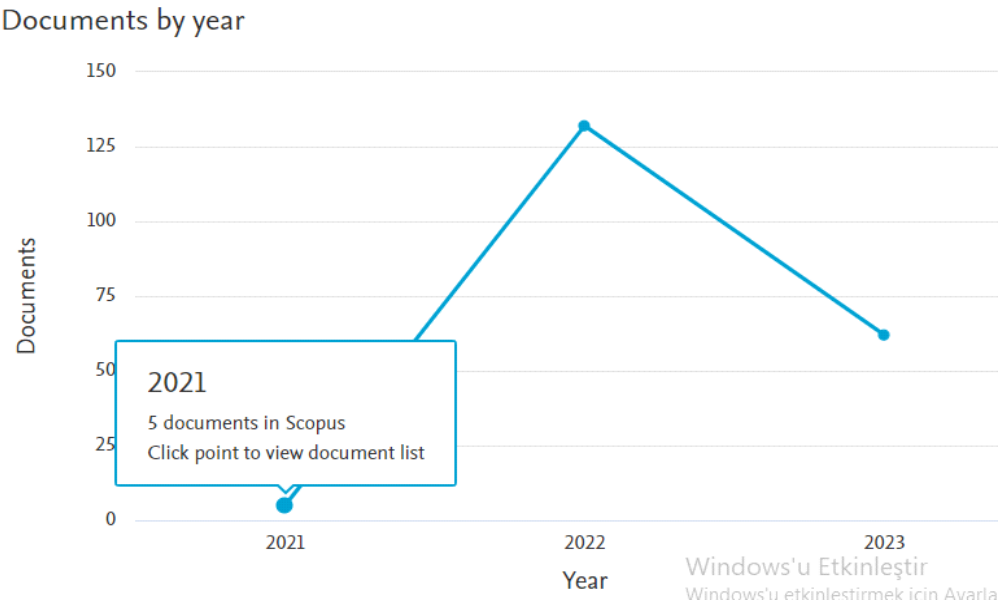

Figure 7a. Cited documents by year (2021-2023).

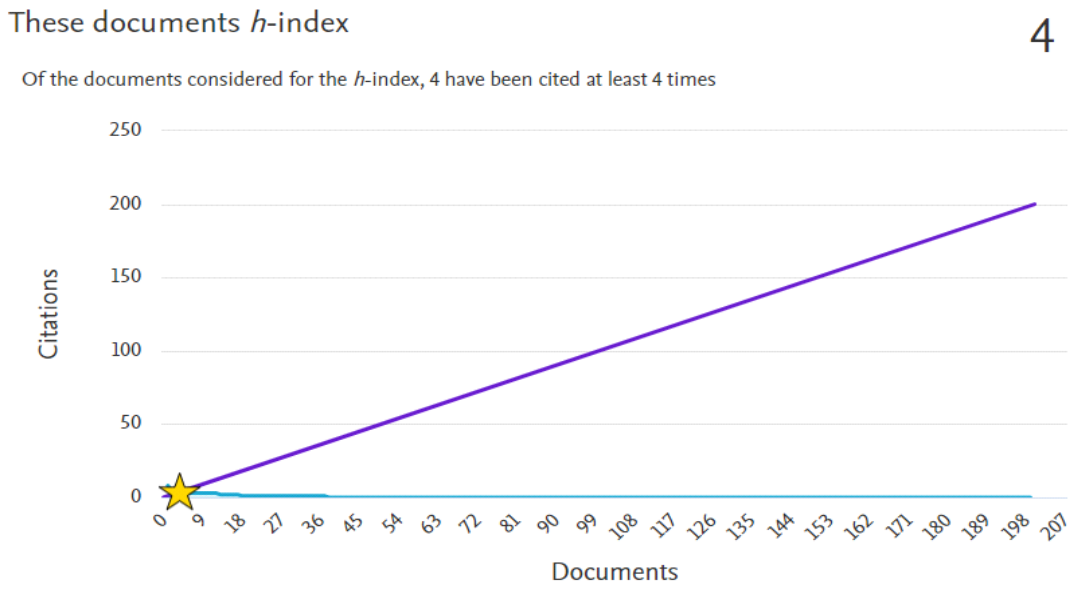

Figure 7b. H index of these documents (2021-2023).

DISCUSSION

Technological advances in the field of health have caused people to live longer. For this reason, rehabilitation has become important to improve the quality of life of individuals with chronic diseases. The results of this study also support that 'Rehabilitation' is and will continue to be the subject of scientific research in many different disciplines. In line with the data obtained as a result of the research and experiences, effective rehabilitation guidelines are also updated. Therefore, it is necessary to follow the current studies in this field closely. Databases are important databases for scientific researchers, and researchers living in different geographies around the world can benefit from and be influenced by each other's thoughts and experiences. This is one of the positive effects of digitalization. In addition, over the years, 'individualism' and 'individual life' have become increasingly important, and improving the 'quality of life' has become one of the main health goals. This has contributed to the importance of rehabilitation.

Bibliometric analyses help health professionals by giving a comprehensive look. The increasing number of studies and citations in this field in recent years supports the high interest in this field. These articles are mostly written in English, with the United States, United Kingdom, and Germany in the first rank. We see that the first two institutions with the most publications are the Canadian University of Toronto and the VA Medical Center. Since there are many rehabilitation articles; it aims to increase and consolidate the health care policies in these countries rather than personal life security. 'Rehabilitation' has taken its place in routine health care services, with high access to quality health services and quality of life being among the primary health goals in developed countries.

In the field of health, there are many specialized areas of 'rehabilitation' which have different individual treatment goals and approaches. The main ones can be listed as musculoskeletal, neurological, cancer, and cardiopulmonary rehabilitation[9-13]. Although rehabilitation seems to be individually targeted, it increases the social impact on individuals. There have been many developments in the recovery years for the disabled. Exercise, gait analysis, and biomechanical examinations are carried out in physical and social areas, which carry the risk of disability and for operational purposes. For this purpose, extensive epidemiological and target-oriented clinical and laboratory studies are carried out[14-16]. Biomedical engineering strives to develop devices that help protect people with disabilities.

Disability of people with disabilities depends on treatment and health problems, as well as psychosocial and outcome factors. It is important to reduce losses in this area to protect these intended disabled people[17]. Many people with chronic rheumatic diseases experience loss of function in their daily lives due to sarcopenia[18]. In chronic rheumatic diseases, after a while the individual needs rehabilitation.

Rehabilitation is a team effort. Such as physicians, nurses, patients, surgical caregivers, and therapists in different branches related to the disease. In this state, there are many factors affecting the development. We now know that rehabilitation approaches provide benefits in many aspects, including hospital stay, quality of life, treatment success, and financial costs 14. For this reason, the importance given to rehabilitation has increased. In our study, rehabilitation studies have increased in the late 1950s and rehabilitation has become the subject of research in health and non-health (engineering) scientific fields. We see that the disciplines dealing with rehabilitation are in different aspects such as medicine, engineering, neuroscience, psychology, computer science, social sciences, and nursing.

The limitations of the study are evaluation in a single database and not including studies that do not include the keyword 'rehabilitation'.

In conclusion, the importance of 'rehabilitation', which means improving the individual in a functional sense, has been better understood after the 2019 covid pandemic when physical activity was limited and the number of patients in intensive care increased. The importance of 'rehabilitation' will be understood even more as the treatment of diseases with advancing technology and the quality of life being at the top of the health treatment targets.

Author Contributions: Concept/Design : TTK; Data acquisition: TTK;; Data analysis and interpretation: TTK; Drafting manuscript: TTK; Critical revision of manuscript: TTK; Final approval and accountability: TTK; Technical or material support: TTK; Supervision: TTK; Securing funding (if available): n/a.
Ethical Approval: The study complied with the World Medical Association Declaration of Helsinki. Ethics committee approval is not required, as it performs a bibliometric analysis of existing published researches. There is no human or animal research.
Peer-review: Externally peer-reviewed.
Conflict of Interest: Authors declared no conflict of interest.
Financial Disclosure: Authors declared no financial support

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