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BRIEF REPORT

Trends in Physical Medicine and Rehabilitation Publications Over the Past 16 Years

Michael Mimouni, MD,[a,*] Keren Cismariu-Potash, MD,[b,*] Motti Ratmansky, MD,[c,d] Sharon Shaklai, MD,[e] Hagay Amir, MD,[b] Aviva Mimouni-Bloch, MD[d,f]

From the [a]Department of Ophthalmology, Rambam Health Care Campus, Haifa; [b]Orthopedic Rehabilitation Department, and [c]Pain Unit, Loewenstein Rehabilitation Hospital, Raanana; [d]Sackler Faculty of Medicine, Tel Aviv University, Tel Aviv; [e]Department of Child & Youth Rehabilitation and the [f]Pediatric Neurology and Developmental Unit, Loewenstein Rehabilitation Hospital, Raanana, Israel.
[*]Mimouni and Cismariu-Potash contributed equally to this work.

Abstract

Objectives: To test the hypothesis that the number of publications in the field of physical medicine and rehabilitation (PMR) has increased over the last 16 years in a linear fashion, and to compare the trends in publication between the pediatric and adult literature.

Design: We evaluated all MEDLINE articles from January 1, 1998, to December 31, 2013, using Medical Subject Headings categories of rehabilitation. An age filter separated adult and pediatric articles. We divided articles into those with a low level of scientific evidence such as letters and editorials, and those with a high level of evidence such as controlled trials and meta-analyses. We used regression analysis to evaluate the effect of the year of publication on the number of publications of each type.

Setting: Not applicable.

Participants: Not applicable.

Interventions: Not applicable.

Main Outcome Measures: Not applicable.

Results: MEDLINE reported a total of 98,501 adult publications and 30,895 pediatric publications during the evaluated period. There was a significant linear increase in the total number of publications in adult and pediatric rehabilitation publications with multiplication factors of 3.3 and 2.9, respectively. Importantly, publications with a high level of evidence showed larger multiplication factors compared with those with a low level of evidence (5.5 and 5.1 vs 2.1 and 2.0) for the adult and pediatric literature.

Conclusions: The number of publications in the PMR field, especially those with a high level of scientific evidence, has increased linearly over the years, reflecting the rapid evolution of both adult and pediatric PMR.

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The World Health Organization estimates that globally 1 billion people or 15% of the world's population experience disabilities, of whom 110 to 190 million people (2% of the world's population) experience severe or extreme difficulties in functioning. Furthermore, 190 million people worldwide have a severe disabling illness that has a considerable impact on survival, daily function, employment, and quality of life.[1] Therefore, it is no wonder that rehabilitation has come into increased focus over the past few decades. This has led to a significant increase in the volume of physical medicine and rehabilitation (PMR) research.

Several search engines have been developed for the purpose of effective access to the medical literature. The National Center for Biotechnology Information provides health professionals with a free service (PubMed),[2] which now serves as a major popular search engine of the U.S. National Library of Medicine and the National Institutes of Health. PubMed provides access to references dating back to 1946. PubMed offers several approaches to facilitate coping with the vast amount of published medical and scientific information, assisting users in accessing the information most relevant to their needs. An important tool is the classification of publications as clinical trials (CTs), editorials, letters, meta-analyses, practice guidelines, randomized

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controlled trials (RCTs), and reviews in addition to several other classifications.

We hypothesized that the number of publications in the field of PMR has increased over time and aimed to ascertain the pattern of increase, focusing on differences in trends between the adult and pediatric rehabilitation literature.

Methods

We used the Internet address http://www.ncbi.nlm.nih.gov/entrez[2] to evaluate all MEDLINE articles registered from January 1, 1998, to December 31, 2013. We focused on the fields of pediatric and adult PMR. Medical Subject Headings (MeSH) is an online comprehensive vocabulary used for indexing medical articles in PubMed in a controlled method. We used MeSH categories to verify the inclusion of all subcategories for every keyword: "Physical and Rehabilitation Medicine"[Mesh] OR "rehabilitation" [Subheading] OR "Rehabilitation Nursing"[Mesh] OR "Rehabilitation, Vocational"[Mesh] OR "Rehabilitation of Speech and Language Disorders"[Mesh] OR "Rehabilitation Centers"[Mesh] OR "Correction of Hearing Impairment"[Mesh] OR "Activities of Daily Living"[Mesh] OR "Rehabilitation"[Mesh].

We limited the search to "humans only" and focused on the pediatric and adult fields by limiting the search to "all child" (0–18y) or "all adult" (≥19y). We limited the publications to English and collected the total number of annual publications. The search was independently performed by 2 researchers (K.C.-P., M.R.), using 1 limit each time, according to the type of article based on the MEDLINE classification: meta-analyses, RCTs, controlled CTs, CTs, reviews, editorials, practice guidelines, case reports, and letters. To ensure that the keywords we used yielded appropriate search results, we used a random sample of 10 studies each year, and in more than 90% of the cases, the categorization of PubMed was accurate. However, there were obvious overlaps: for instance, all RCTs are also listed as CTs; and many articles, based on a case report and a review of the literature, are listed as both reviews and case reports.

Statistical analyses

Minitab version 16.2.4[a] was used. Regression analysis was applied to describe the effect of advancing year of publication on the yearly number of publications. A P value of $<.05$ was considered statistically significant.

Results

Overall number of publications by year

A total of 98,501 adult publications and 30,895 pediatric publications were recorded in PubMed. The overall number of publications in the field of rehabilitation, as well as the number of publications separately in adult rehabilitation and in pediatric rehabilitation, showed a linear pattern of increase between 1998 and 2013 (fig 1, table 1). The rate of increase showed a multiplication factor of 3.3 for adult publications and a slightly lower 2.9 for pediatric publications.

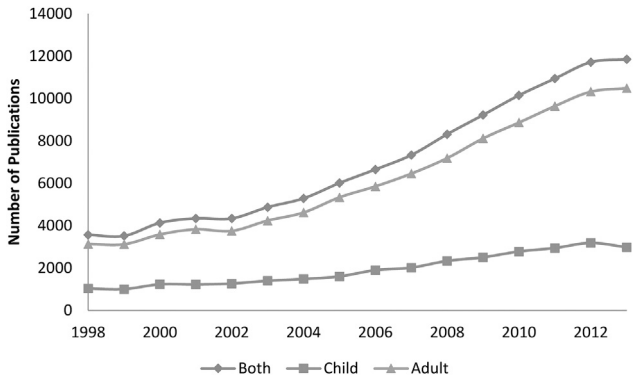

Fig 1 Total number of PMR publications (y-axis) in adult, pediatric, and both age groups per year of publication (x-axis).

Number of publications by category and year

There was a significant increase in the number of publications over time for both adult and pediatric rehabilitation, in meta-analyses, RCTs, controlled CTs, CTs, reviews, and case reports.

There was a steady increase in adult letters, while there was no significant change in the number of pediatric letters. For both editorials and practice guidelines, no linear relationship was found between the number of publications and years throughout the study period.

High- versus low-level evidence publications

We created 2 broader categories of publications: articles considered as having a high quality of scientific evidence (meta-analyses, RCTs, controlled CTs, CTs) and those with a low quality of scientific evidence (reviews, editorials, practice guidelines, case reports, letters). Analysis of pooled data for these categories showed a linear increase in both adult and pediatric rehabilitation publications. However, the multiplication factors for the high-quality publications were higher than those for the low-quality publications (see table 1).

Discussion

There was a significant linear increase in the number of publications in the field of rehabilitation between 1998 and 2013. PMR has undergone major advances over recent decades, including the development and endorsement of the World Health Organization *International Classification of Functioning, Disability and Health* for use in member states as the international standard to describe and measure health and disability.[3-6] This significant rise in number of publications may possibly reflect the results of these efforts. Importantly, our study shows that high-quality publications lent a greater contribution to the yearly increase than did low-quality publications.

In the high-quality category, the highest multiplication factors were found in the meta-analyses publications, followed by RCTs.

List of abbreviations:

CT	**clinical trial**
MeSH	**Medical Subject Headings**
PMR	**physical medicine and rehabilitation**
RCT	**randomized controlled trial**