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REVIEW ARTICLE

PREVALENCE OF REVIEW STUDIES PUBLISHED IN REHABILITATION JOURNALS DURING THE LAST DECADE

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Objective: **To compare the number of review papers published in rehabilitation journals during recent years with the number published a decade ago.**
Methods: **PubMed search for review papers published in 7 major rehabilitation journals in 2005–2007 and 2015–2017.**
Results: **Of the 940 review papers identified, 659 were published in 2015–2017, and 281 in 2005–2007. Two journals: Disability and Rehabilitation and Archives of PM&R published over half of all the reviews. Over the last decade, the design of reviews has changed substantially, with an increase in the number of meta-analyses (from 2.5% in 2005 to 44% in 2017) and in the number of reviews conducted solely on randomized controlled studies (from 6% in 2005 to 32% in 2017).**
Conclusion: **PRM training schemes must adjust to the change in published research to enable understanding and interpretation of the results and conclusions of systematic reviews and quantitative analyses.**

Key words: systematic review; meta-analysis; training.

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LAY ABSTRACT

To compare the number of review papers published in rehabilitation journals during recent years with the number published a decade ago. A PubMed search was performed for review papers published in 7 major rehabilitation journals in 2005–2007 and 2015–2017. Of the 940 papers identified, 659 were published in 2015–2017, and 281 in 2005–2007. Two journals: Disability and Rehabilitation and Archives of PM&R published over half of all the reviews. During the last decade, the design of reviews has changed substantially, with an increase in the number of meta-analyses (from 2.5% in 2005 to 44% in 2017) and in the number of reviews conducted solely on randomized controlled studies (from 6% in 2005 to 32% in 2017). PRM training schemes must adjust to the change in published research to enable understanding and interpretation of the results and conclusions of systematic reviews and quantitative analyses.

The number of review papers published in the field of medical research is increasing exponentially (1–6). While not yet analysed, the situation in the field of rehabilitation probably follows the same pattern. Reviews often have more citations than original studies, and they are used as a basis for clinical guidelines and policy-making strategies (4). As the methodological quality of reviews varies widely, clinicians need to have at least basic expertise to interpret the results and conclusions reported by reviews and meta-analyses (7–14).

This study compares the number and some basic characteristics of review studies published by 7 major rehabilitation journals in 2005–2007 with those published in 2015–2017. These results may assist PRM trainers, in particular, to plan educational schemes for undergraduates, residents and allied professionals, and to improve clinicians' readiness to read and critically understand review papers.

MATERIALS AND RESULTS

This is a narrative review of review papers published in the field of rehabilitation during the last decade. The search was limited to 2 3-year periods: 2015–2017 and a decade earlier 2005–2007. The search was conducted in the Med-

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line database using the PubMed search engine and the following clause: ("PM R"[Journal] OR "Eur J Phys Rehabil Med"[Journal] OR "J Rehabil Med"[Journal] OR "Am J Phys Med Rehabil"[Journal] OR "Arch Phys Med Rehabil"[Journal] OR "Clin Rehabil"[Journal] OR "Disabil Rehabil"[Journal] OR "Scand J Rehabil Med"[Journal]) AND ("Review" [Publication Type] OR "Meta-Analysis" [Publication Type] OR review[TI] OR meta-analysis[TI]).

The search was limited to 7 well-known international journals with a primary focus on rehabilitation, indexed on Medline, published in English, and with impact factors greater than 1.0: *PM&R, European Journal of Physical and Rehabilitation Medicine, Journal of Rehabilitation Medicine (previously known as Scandinavian Journal of Rehabilitation Medicine), American Journal of Physical & Rehabilitation Medicine, Archives of Physical & Rehabilitation Medicine, Clinical Rehabilitation, and Disability and Rehabilitation.*

The records identified were transferred to Endnote® software and analysed based on their titles, abstracts and PubMed metadata. The following variables were extracted: first author, year of publication, journal name, volume, issue, pages, title, country of origin, review design, and study types used by each review. Review design was defined as: (*i*) a review without a meta-analysis (both narrative and systematic); (*ii*) a systematic review with a meta-analysis; and (*iii*) a review with unclear design. The reviews identified were also classified according to the included original study types as follows: (*i*) only randomized controlled trials (RCTs) were included; (*ii*) studies other than RCTs were also included; and (*iii*) unclear types. An attempt was made to categorize review designs, topics and conclusions in more detail. That attempt was, however, unsuccessful due to the overwhelming heterogeneity of papers.

The estimates were reported as absolute numbers and percentages. All analyses were conducted using Stata/IC Statistical Software: Release 14. College Station (StataCorp LP, TX, USA).

The analysis was carried out on 940 review papers. Of these, 659 were published in 2015–2017 and 281 in 2005–2007 (an increase of 235%). **Table I** shows the number of papers per country in both 3-year periods and **Table II** presents the respective figures per journal. In 2005–2007, the European and the American journals published almost an equal number of review papers: 146 (52%) vs 135 (48%), respectively. The proportion was slightly different in 2015–17, when the included European journals published 401 (61%) reviews.

Table I. Review papers published in 2005–2007 and 2015–2017 (per country)

Country	2005–2007 *n* (%)	2015–2017 *n* (%)	Total *n* (%)
USA	132 (47)	70 (11)	202 (21)
Australia	15 (5)	99 (15)	114 (12)
UK	27 (10)	76 (12)	103 (11)
Canada	16 (6)	81 (12)	97 (10)
Netherlands	35 (13)	42 (6)	77 (8)
China	0 (0)	52 (8)	52 (6)
Italy	3 (1)	29 (4)	32 (3)
Belgium	7 (3)	18 (3)	25 (3)
Germany	15 (5)	9 (1)	24 (3)
Brazil	0 (0)	23 (3)	23 (2)
New Zealand	2 (1)	15 (2)	17 (2)
Taiwan	0 (0)	13 (2)	13 (1)
Finland	2 (1)	10 (2)	12 (1)
Sweden	5 (2)	7 (1)	12 (1)
Ireland	2 (1)	9 (1)	11 (1)
Spain	0 (0)	11 (2)	11 (1)
Denmark	0 (0)	9 (1)	9 (1)
Others	20 (7)	86 (13)	106 (11)
Total	280 (100)	659 (100)	940 (100)

Table II. Review papers published in 2005–2007 and 2015–2017 (per journal)

Journal	2005–2007 *n* (%)	2015–2017 *n* (%)	Total *n* (%)
J Rehabil Med	20 (7)	27 (4)	47 (5)
Disabil Rehabil	94 (33)	174 (26)	268 (29)
Arch Phys Med Rehabil	69 (25)	183 (28)	252 (27)
Am J Phys Med Rehabil	66 (23)	34 (5)	100 (11)
Clin Rehabil	32 (11)	154 (23)	186 (20)
Eur J Phys Med Rehabil	n/a	46 (7)	46 (5)
PM&R	n/a	41 (6)	41 (4)
Total	281 (100)	659 (100)	940 (100)

n/a: not applicable.

In 2005–2007, more than 80% of all records came from USA, Australia, UK, Canada, and the Netherlands. In 2015–2017, these countries produced 62% of rehabilitation reviews. Two journals, *Disability and Rehabilitation* and *Archives of PM&R*, published over half of all identified reviews in both time periods. The review design has substantially changed during the last decade. The proportion of meta-analyses increased from 2.5% in 2005 to 44% in 2017. In addition, in the year 2005 only 6% of reviews were conducted solely on RCTs, while the respective percentage in 2017 was 32% (an increase of more than 500%).

DISCUSSION

During the last decade, the number of review papers published by major rehabilitation journals has increased exponentially. At the same time, the quality of published reviews has changed towards quantitative synthesis (meta-analysis) of randomized trials. The results show the same tendency as observed in other clinical fields (1–6). Considering the increasing number of new open-access journals, a further increase in the number of review papers can be expected.

The results suggest that training schemes in PRM should be adjusted according to the new situation. It is vital that clinicians understand the basic concepts of systematic reviews and meta-analyses. Narrative reviews are intuitively understandable by clinicians, as such reviews are familiar to clinicians as "expert opinions". In contrast, concepts such as methodological quality, heterogeneity, effect size (especially a standardized one), or interpretation of meta-synthetic forest plots used in systematic reviews and meta-analyses are not self-explanatory. A substantial part of PRM training should be allocated to teaching how to interpret critically the results of published reviews, meta-analyses and guidelines. One possible form of training could be PRM residents' participation in systematic reviewing along with senior researchers. Major journals should reserve space for educational papers focussing on the basics of systematic reviewing and meta-analytical techniques.

The authors have no conflicts of interest to declare.

REFERENCES

1. Alabousi M, Alabousi A, McGrath TA, Cobey KD, Budhram B, Frank RA, et al. Epidemiology of systematic reviews in imaging journals: evaluation of publication trends and sustainability? Eur Radiol 2018 Jul 26. [Epub ahead of print].
2. Chalmers I, Fox DM. Increasing the incidence and influence of systematic reviews on health policy and practice. Am J Public Health 2016; 106: 11–13.
3. Grootens KP, Assendelft WJ, Overbeke AJ. [Increased number of systematic reviews in the Netherlands in the period 1991–2000]. Ned Tijdschr Geneeskd 2003; 147: 2226–2230 (in Dutch).
4. Larsen PO, von Ins M. The rate of growth in scientific publication and the decline in coverage provided by Science Citation Index. Scientometrics 2010; 84: 575–603.
5. Page MJ, Shamseer L, Altman DG, Tetzlaff J, Sampson M, Tricco AC, et al. Epidemiology and reporting characteristics of systematic reviews of biomedical research: a cross-sectional study. PLoS Med 2016; 13: e1002028.
6. Vanclay JK. Impact factor: outdated artefact or stepping-stone to journal certification? Scientometrics 2012; 32: 211–238.
7. Guyatt GH, Osoba D, Wu AW, Wyrwich KW, Norman GR; Clinical Significance Consensus Meeting Group. Methods to explain the clinical significance of health status measures. Mayo Clin Proc 2002; 77: 371–383.
8. Hunt DL, Haynes RB. How to read a systematic review. Indian J Pediatr 2000; 67: 63–66.
9. Jadad AR, Moher D, Klassen TP. Guides for reading and interpreting systematic reviews: II. How did the authors find the studies and assess their quality? Arch Pediatr Adolesc Med 1998; 152: 812–817.
10. Johnston BC, Alonso-Coello P, Friedrich JO, Mustafa RA, Tikkinen KA, Neumann I, et al. Do clinicians understand the size of treatment effects? A randomized survey across 8 countries. CMAJ 2016; 188: 25–32.
11. Klassen TP, Jadad AR, Moher D. Guides for reading and interpreting systematic reviews: I. Getting started. Arch Pediatr Adolesc Med 1998; 152: 700–704.
12. Moher D, Jadad AR, Klassen TP. Guides for reading and interpreting systematic reviews: III. How did the authors synthesize the data and make their conclusions? Arch Pediatr Adolesc Med 1998; 152: 915–920.
13. Murad MH, Montori VM, Ioannidis JP, Jaeschke R, Devereaux PJ, Prasad K, et al. How to read a systematic review and meta-analysis and apply the results to patient care: users' guides to the medical literature. JAMA 2014; 312: 171–179.
14. Russo MW. How to review a meta-analysis. Gastroenterol Hepatol (N Y) 2007; 3: 637–642.