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REVIEW

Physiotherapy literature in medical indexes: How comprehensive is index coverage of journals cited frequently by five physiotherapy journals?

Richard W. Bohannon and David Tiberio

The reasoning behind this study was to determine the most frequently cited journal publications in five physiotherapy journals during a one-year period, and which of five medical indexes provides the most comprehensive review of journals cited. The list of journals most frequently cited in the five journals of interest was created by determining the citation frequency of all cited journals in each of the 'core' citing journals. The top 10% of journals (in terms of citation frequency) from each of the five citing journals were combined to produce a master list of the most frequently cited journals. This master list was cross-tabulated with five different medical indexes (Cumulative Index of Nursing and Allied Health, Excerpta Medica, Index Medicus, Physiotherapy Index, Science Citation Index) to determine the comprehensiveness of the database of each index with regard to physiotherapy literature. The Cumulative Index of Nursing and Allied Health was not as thorough as the other indexes in its inclusion of cited journals. No single index database provided adequate coverage of the journals most frequently cited in the five physiotherapy journals. The most comprehensive coverage was provided by pairs of indexes that have strengths in different areas.

INTRODUCTION

Before new information can be applied to the benefit of patients receiving physiotherapy, it must first be accessed and understood. Although many sources of information exist, journal publications represent an extensive source of new information of potential relevance to patient care. A knowledge of relevant references can be gained by the ongoing review of core journals or

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of journals personally identified as important to one's practice (Bohannon, 1987). Alternatively, databases, including printed indexes derived from them, can be used. Among the relevant indexes are Index Medicus, Science Citation Index, Excerpta Medica, Cumulative Index to Nursing and Allied Health (CINAHL) and Physiotherapy Index. Bohannon (1988) reviewed these options in a recent publication. John (1985) suggested that no database can be regarded as most important. John (1985) and Huth (1982) have both suggested that several databases should probably be used to search the literature for relevant information. These suggestions notwithstanding, no systematic analysis has been performed of the available indexing services and their inclusion of journals relevant to physiotherapy.

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Table 1
Index inclusion of journals cited frequently in five physical therapy journals

Cited journal	Number of journals citing frequently	Index inclusion					
		Cumulative Index of Nursing and Allied Health	Excerpta Medical	Index Medicus	Physiotherapy Index	Science Citation Index	
<i>Acta Orthop. Scand.</i>	2	-	+	+	+	+	
<i>Acta Physiol. Scand.</i>	1	-	+	+	+	+	
<i>Age Ageing</i>	1	-	+	+	-	+	
<i>Am. J. Physiol.</i>	2	-	+	+	-	+	
<i>Am. J. Phys. Med.</i>	3	+	+	+	+	+	
<i>Am. J. Sports Med.</i>	2	+	+	+	+	-	
<i>Am. Rev. Resp. Dis.</i>	2	-	+	+	+	+	
<i>Ann. Rheum. Dis.</i>	3	-	+	+	+	+	
<i>Arch. Phys. Med. Rehabil.</i>	5	+	+	+	+	+	
<i>Australian Journal of Physiotherapy</i>	2	-	+	-	+	-	
<i>Brain</i>	2	-	+	+	-	+	
<i>Brain Research</i>	1	-	+	+	-	+	
<i>Br. Med. J.</i>	2	-	+	+	+	+	
<i>Chest</i>	1	+	+	+	+	+	
<i>Clinical Haemorrhology</i>	1	-	+	+	+	+	
<i>Clinical Management in Physical Therapy</i>	1	+	-	-	-	-	
<i>Clinical Orthop.</i>	2	-	+	+	+	+	
<i>Clinical Research</i>	1	-	+	+	+	+	
<i>Dev. Med. Child Neurol.</i>	4	-	+	+	-	+	
<i>Electroenceph. Clin. Neurophys.</i>	1	-	+	+	+	+	
<i>Eur. J. Appl. Physiol.</i>	1	-	+	+	+	+	
<i>Exp. Brain Res.</i>	1	-	+	+	-	+	
<i>Exp. Neurol.</i>	1	-	+	+	-	+	
<i>Int. Rehabil. Med.</i>	1	-	+	+	+	+	
<i>Int. J. Sports Med.</i>	1	-	+	+	+	+	
<i>J. Allied Health</i>	1	+	-	+	+	+	
<i>JAMA</i>	1	-	+	+	+	+	
<i>J. Appl. Physiol.</i>	2	-	+	+	+	+	
<i>J. Anat.</i>	1	-	+	+	+	+	

J. Biomech.
J. Bone Joint Surg. [Am.]
J. Bone Joint Surg. [Br.]

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J. Armed Health 1
JAMA 1
J. Appl. Physiol. 2
J. Anat. 1

<i>J. Biomech.</i>	1	-	+	+	+	+	+	+
<i>J. Bone Joint Surg. [Am.]</i>	5	-	+	+	+	+	+	+
<i>J. Bone Joint Surg. [Br.]</i>	2	-	+	+	+	+	+	+
<i>Journal of Chartered Society of Massage and Medical Gymnastic</i>	1	-	-	-	-	-	-	-
<i>J. Med. Educ.</i>	1	-	+	+	+	+	+	+
<i>J. Neurol. Neurosurg. Psychiatry</i>	1	-	+	+	+	+	+	+
<i>Journal of Orthopaedic and Sports Physical Therapy</i>	3	+	+	+	+	+	+	+
<i>J. Paediatrics</i>	1	-	+	+	+	+	+	+
<i>J. Physiol. [Lond.]</i>	1	-	+	+	+	+	+	+
<i>Lancet</i>	1	-	+	+	+	+	+	+
<i>Med. Sci. Sports Exerc.</i>	1	-	+	+	+	+	+	+
<i>Muscle Nerve</i>	1	-	+	+	+	+	+	+
<i>Neurology</i>	2	-	+	+	+	+	+	+
<i>New. Engl. J. Med.</i>	1	-	+	+	+	+	+	+
<i>Nursing Mirror</i>	1	+	+	+	+	+	+	+
<i>Nursing Times</i>	1	+	+	+	+	+	+	+
<i>Nursing Research</i>	2	+	+	+	+	+	+	+
<i>Orthop. Clin. NA</i>	1	-	+	+	+	+	+	+
<i>Orthotics and Prosthetics Pain</i>	1	-	+	+	+	+	+	+
<i>Paraplegia</i>	1	-	+	+	+	+	+	+
<i>Percept. Mot. Skills</i>	1	-	+	+	+	+	+	+
<i>Physician and Sports Medicine</i>	1	-	+	+	+	+	+	+
<i>Physiotherapy</i>	5	+	+	+	+	+	+	+
<i>Physiotherapy Canada</i>	4	+	+	+	+	+	+	+
<i>Physiotherapy Practice</i>	4	+	+	+	+	+	+	+
<i>Phys. Ther.</i>	1	+	+	+	+	+	+	+
<i>Psychol. Bull.</i>	5	+	+	+	+	+	+	+
<i>Research Quarterly</i>	1	-	+	+	+	+	+	+
<i>Rheumatol. Rehabil.</i>	2	-	+	+	+	+	+	+
<i>Scand. J. Rehabil. Med.</i>	2	-	+	+	+	+	+	+
<i>Science</i>	3	-	+	+	+	+	+	+
<i>Spine</i>	1	-	+	+	+	+	+	+
<i>Ultrasonics</i>	3	-	+	+	+	+	+	+
<i>Ultrasound in Medicine and Biology</i>	1	-	+	+	+	+	+	+

The purpose of this investigation was to determine the relative thoroughness with which various indexes cover core journals of physiotherapy. Our hypothesis was that some indexes would include in their databases a significantly larger percentage of core journals of physiotherapy than other indexes. Verification of the hypothesis would indicate that certain indexes may be superior references for journals containing current information relevant to physiotherapy.

METHOD

Five 'core' physiotherapy journals were included in this study: *Physical Therapy*, *Australian Journal of Physiotherapy*, *Physiotherapy Canada*, *Physiotherapy* and *Physiotherapy Practice*. The references cited in each article, editorial or commentary in each 1987 issue of these journals were recorded. More specifically, the different journals that were cited as references in the five physiotherapy core (citing) journals were tabulated, as was the frequency with which they were cited. The cited journals of each core journal were then arranged hierarchically from the most often to the least often cited. The journals in the top 10% of the citation frequency list for each of the physiotherapy core journals were identified and combined to create a master list of 64 journals most often cited in the five physiotherapy journals (only 64 journals were so identified because the same journals were often among the 10% most frequently cited in the different core journals.) The combined master list of cited journals was then compared against the lists of journals included in the databases of five indexes—Index Medicus, Science Citation Index, Excerpta Medica, CINAHL and Physiotherapy Index. The actual number of journals on the combined master list that were included in each of the five indexes in 1987 was recorded. The actual number of master list journals included in each index was divided by 64 to yield the percentage of cited journals from the master list that were included in each index. Chi-square was used to determine whether the percentage of master list journals included in each index differed significantly between indexes.

RESULTS

The number of different journals cited per core citing journal in 1987 was as follows: *Physical Therapy*, 456; *Australian Journal of Physiotherapy*, 155; *Physiotherapy Canada*, 181; *Physiotherapy*, 200; and *Physiotherapy Practice*, 97. Table 1 presents, in alphabetical order, the combined master list of journals cited frequently in the five physiotherapy core journals in 1987. Table 1 also documents whether the cited journals are included in the databases of each of the five indexes. The percentages of master list journals included in the five index databases were as follows: CINAHL, 21.9; Excerpta Medica, 85.9; Index Medicus, 76.6; Physiotherapy Index, 67.2; and Science Citation Index, 68.7. These percentages differed significantly ($\chi^2=68.00$, $df=4$, $P<0.001$). More specifically, the percentage of cited journals included in CINAHL was significantly less than the percentage included in the other indexes. A chi-square analysis of the percentage of journals cited in the indexes other than CINAHL did not demonstrate a significant difference between indexes ($\chi^2=7.485$, $df=3$, $P=0.058$).

Index omissions were quite specific. The CINAHL, as the name might imply, was comprehensive in its inclusion of journals related to nursing and allied health but lacking in its coverage of other journals. Physiotherapy Index and Excerpta Medica, unlike Index Medicus and Science Citation Index, were fairly comprehensive in their coverage of journals with physical (physio) therapy in their titles. Physiotherapy Index's coverage of neurological journals was weak. Because of these specific patterns of inclusion, all pairs of indexes were more comprehensive in their inclusion of journals than a single

Table 2
Number of frequently cited journals found in at least one index

	CINAHL ^a	EM	IM	PI
Excerpta Medica (EM)	60			
Index Medicus (IM)	57	57		
Physiotherapy Index (PI)	54	61	59	
Science Citation Index (SCI)	55	56	52	61

^aCINAHL=Cumulative Index of Nursing and Allied Health.

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DISCUSSION

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The critical factors determining overall index use and value merit further study. Among such factors are clinicians' knowledge of various indexes and how to use them, and the relative availability of different indexes. Another study on the topic of this paper, index inclusiveness of relevant literature, could focus on the indexes' listing of specific article citations rather than journal citations. For such a study, specific articles of relevance could be identified by clinicians rather than by authors (as in citation analysis).

CONCLUSIONS

In medical indexes, the coverage of journals cited frequently in five physiotherapy journals is neither complete nor consistent. By using selected pairs of indexes, clinicians seeking information relevant to practice are more likely to succeed in finding relevant literature.

Acknowledgements

We gratefully acknowledge the assistance of the editors of *Physiotherapy Canada* and the *Australian Journal of Physiotherapy*, who provided copies of each of the 1987 issues of their respective journals.

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index other than CINAHL. Table 2 shows the number of journals included in all possible index pairs. The index pairs including 60 or more of the 64 frequently cited journals of the master list were CINAHL and Excerpta Medica, Physiotherapy Index and Excerpta Medica, and Science Citation Index and Physiotherapy Index.

DISCUSSION

Clinicians seeking information relevant to practice may consult any of a number of indexes in their effort to identify appropriate journal articles. This study documented two features of selected indexes which have a bearing on the literature search process. First, the five indexes assessed were not equally thorough in their coverage of journals cited frequently in core physiotherapy journals. The CINAHL was inferior, as a whole, in covering the frequently cited journals. It was, nevertheless, more complete than most other indexes in its coverage of physiotherapy journals (e.g. *Physiotherapy Practice*). Secondly, by using two indexes that include different types of journals in their databases, clinicians may be more likely to find the literature they seek relevant to their practices. This finding is consistent with the suggestions of others (John, 1985; Huth, 1982).

Although this study addressed journal inclusion in the databases of different indexes, the value of an index to clinicians may be dependent on more than journal inclusion. The inclusion of abstracts in Excerpta Medica may increase its value to clinicians. Physiotherapy Index's provision of a monthly current awareness topic search specifically relevant to physiotherapy may elevate its value. Because it is updated monthly, it is very current. As it is highly specific to physiotherapy, it includes fewer articles than more general indexes. Thus the identification of articles of interest may be achieved without wading

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