

Unearthing Evidence from the Holy Grail: What does Quantitative Analysis of Articles in PubMed Implicate Medicine and Health Sciences?

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Abstract

This editorial aimed to throw light on the use of PubMed as an evidence resource to inform the quality and quantity of research as an implication into practice. This editorial performed a short review of literature that reported on quantitative analysis of PubMed from the authors' perspective. The nine identified reviews provided descriptive summary assimilated from volumes of scientific information in terms of indexing characteristics useful for researchers and clinicians searching for evidence in fields related to medical and health sciences.

Keywords: Evidence Resource; MEDLINE; Scientific Analysis; Content Analysis.

Introduction

PubMed is a searchable online database of National Center for Biotechnology Information through National Library of Medicine, USA and funded by the National Institutes of Health. PubMed comprises more than 25 million citations for biomedical literature from MEDLINE, life science journals, and online books. This editorial aimed to throw light on the use of PubMed as

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an evidence resource to inform the quality and quantity of research as an implication into practice. This editorial performed a short review of literature that reported on quantitative analysis of PubMed from the authors' perspective.

PubMed as an Evidence Resource

The first review [1] involved descriptive summary of content in PubMed that characterized the availability of number of citations depending upon various search filters such as article type, text availability, species, languages, subject, journal categories and ages, and also chronologically in order to observe year-wise trend for each of the filter-based quantity of citations. The review concluded about the inherent scientific contribution of PubMed towards evidence-based medical and health science practice.

PubMed and Levels of Evidence

The second review [2] described the articles published on levels of evidence and found, "Of the 45 included studies, specialty-based analysis for levels of evidence was done in 12 articles, journal-based analysis in 5 articles, practice-based analysis in 25 articles, and conference-based analysis in 3 articles. Among the practice-based articles, 10 were on assessment and 15 were on treatment. Urology had more studies on analysis of levels of evidence, and very few studies analyzed journals and their content for the same. Three studies were analyses of conference abstracts, all of them in the field of orthopedics."

PubMed and Disorder(s)

Diabetes Mellitus

The third review [3] was performed by Kumar et al

on literature regarding Diabetes mellitus and found that, "there was an exponential increase in number of articles in diabetes over the 40 years and after comparison for various categories and sub-categories, there was found a greater prevalence of 'abstract available' articles, human studies, reviews, English language, MEDLINE journals, Middle-age population and veterinary sciences, with nearly equal gender representation." The authors recommended that journal-specific, population-specific and age-specific analyses are warranted for efficient information to guide evidence-based diabetes care.

Neuropathic Pain

The fourth review [4] by Kumar et al provided quantitative summary of literature on 'neuropathic pain' and found that, "there was an exponential increase in number of articles on neuropathic pain over the 40 years with more number of 'abstract available' articles. Human studies were more than animal studies. There was more number of reviews, case reports and clinical trials among the article types. More articles were of English language, with nearly equal gender representation. There were more number of articles on cancer, and MEDLINE journals had more articles, with more found in adult and middle-age."

Diabetic Neuropathy

The fifth review [5] by Kumar et al was an exploratory summary of studies on diabetic neuropathy (DN) and found that, "although overall number of articles was less, there was an exponential increase in number of articles in DN over the 40 years. After comparison for various categories and sub-categories, there was found a greater prevalence of 'abstract available' articles, human studies, reviews, English language, MEDLINE journals, Middle-age population and cancer, with nearly equal gender representation."

The sixth review [6] by Kumar et al performed a content summary of systematic reviews and/or meta-analyses on DN and found 36 systematic reviews, "most of which were published from developed countries, in many scientific journals across the past 15 years, with lesser number of authors, with search strategy that utilized limited number of databases, included few studies, and they were predominantly on medical interventions."

PubMed and Treatments

Physiotherapy/ Physical Therapy

The seventh review [7] by Kumar et al found

quantity of evidence for physiotherapy/ physical therapy as, "an exponential increase in number of articles in past 40 years, with more number of 'abstract available' articles. Human studies were more than animal studies. There was more number of clinical trials and randomized controlled trials among the article types. More articles were of English language, with nearly equal gender representation. There were more number of articles on complementary medicine, and MEDLINE journals had more articles, with more in adult and middle-age for study populations."

Manual/ Manipulative Therapy

The eighth review by Jamwal and Kumar [8] explored the current status of evidence for and found, "an exponential increase in number of articles in general over the 40 years. There was more number of 'abstract available' articles. Human studies were more than animal studies. There was more number of clinical trials among the article types. More articles were of English language, with nearly equal gender representation. There were more number of articles on complementary medicine, and MEDLINE journals had more articles, with more in adult and middle-age for study populations."

PubMed and Journals

Manual/ Manipulative Therapy Journals

Kumar et al [9] reviewed four leading manual therapy journals and reported, "*Journal of Manipulative and Physiological Therapeutics* (JMPT) was the first to begin publishing, the first to get indexed in PubMed, and also the longest duration of indexation; and *Manual Therapy* (MT) the last to start publishing and *Journal of Bodywork and Movement Therapies* (JBMT) the last to get indexed and also the least duration as indexed; MT was indexed from its year of first publication while JBMT was indexed 26 years after its first publication; JMPT had the largest number of articles and *Journal of Manual and Manipulative Therapy* (JMMT) the least, indexed in PubMed."

Discussion and Conclusion

The nine identified reviews provided descriptive summary assimilated from volumes of scientific information in terms of indexing characteristics which were useful for researchers and clinicians searching for evidence in fields related to medical and health sciences. More such reviews on other

diseases, other treatments and other journals are warranted along a similar quantitative approach of analysis of current evidence.

References

1. Kumar SP, Sisodia V, Kumar KV. PubMed as an Altar of Science: Status of Current Evidence from a Quantitative Synthesis of Articles from 1970-2010. *Indian J Med Health Sci.* 2014; 1(1): 15-23.
 2. Kumar SP, Sisodia V. Analyses of Evidence for Hierarchy and Levels of Evidence: an Exploratory Quantitative Synthesis. *Ibnosina Journal of Medicine and Biomedical Sciences.* 2013; 5(3): 131-9.
 3. Kumar SP, Adhikari P, Jeganathan PS, Sisodia V. Exploring the Research on Diabetes Mellitus: Status of Current Evidence from a 40-year Quantitative Trend Analysis of Published Articles. *International Journal of Health and Rehabilitation Sciences.* 2013a; 2(2): 80-90.
 4. Kumar SP, Adhikari P, Jeganathan PS, Misri ZK, D'Souza SC. Evidence for Neuropathic Pain- a Quantitative Exploration and Trend Analysis of Articles in PubMed Database. *Int J NeurolNeurosurg.* 2013b; 5(1): 5-12.
 5. Kumar SP, Adhikari P, D'Souza SC, Sisodia V. Research Evidence for Diabetic Neuropathy: a 40-year Trend Analysis and Explorative Synthesis of Articles. *Saudi Journal for Health Sciences.* 2013c; 2(3): 176-83.
 6. Kumar SP, Adhikari P, Jeganathan PS, Sisodia V, D'Souza SC. An Overview of Systematic Reviews on Diabetic Neuropathy- A PubMed-Based Quantitative Cross-Sectional Analysis of Articles. *Indian J AnesthAnalg.* 2013d; 1(1): 17-24.
 7. Kumar SP, Sisodia V, Kumar A. Evidence for Physiotherapy/Physical Therapy: a 40-year Trend Analysis and Explorative Synthesis of Articles. *Saudi Journal for Health Sciences.* 2013e; 2(1): 22-30.
 8. Jamwal NR, Kumar SP. Exploring the Evidence Base for Manual/Manipulative Therapy- a 40-year Trend and Quantitative Synthesis of Articles. *Indian J Med Health Sci.* 2015; 2(2): 75-86.
 9. Kumar SP, Sisodia V, Kumar A. Manual Therapy Journals' Contribution to Evidence-Base in Manual/ Manipulative Physical Therapy- a Quantitative Trend Analysis of Articles. *International Journal of Health and Rehabilitation Sciences.* 2013f; 2(2): 98-108.
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