

# Nurse Author & Editor

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### Bibliometrics and Nursing

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Although it was at one time mainly the domain of librarians and a few associated researchers, the field of bibliometrics has now risen to become an essential component of modern academic scholarship (Smith & Hazelton 2011). Many a nurse author and editor, especially those in their early career and others who are new to academia, would be compelled to ask, "what's it all about?" The current paper seeks to answer this question and provide some general information on the issue of bibliometrics in nursing. In doing so, it will first be useful to examine some relevant background issues and define a few key terminologies that are used regularly and appear regularly in discussions on this topic.

#### **How Did It All Begin?**

As a field, bibliometrics can trace its roots to some of the earliest citation indexes made in the field of religion, at least as early as the 12th century (Weinberg 1997). Given that legal systems are generally based on precedent, it became apparent early on that having the results of previous court cases easily at hand would be useful for lawyers (Smith 2007). As a result, legal citation indexes helped pave the way for modern bibliometrics, of which one of the earliest examples was Shepard's Citations—an index of United States court case outcomes that first appeared during the early 1870s (Smith 2012). Building on this concept in the 1950s, an information scientist known as Eugene Garfield, first proposed an index to track citations occurring in the scientific literature (Garfield 1955). This led him to develop the first Science Citation Index® (SCI) in the 1960s.

#### **What Do The Terms Mean?**

For the purposes of this discussion, a citation can be defined as a textual referral to another source of information within a body of text that is subsequently listed in the reference list or bibliography of that text. In academia, citations in journal articles are usually made to other journal articles, although they may also be to books (an entire book or only a part of it), an online reference (such as a website), or whatever source the author of a particular article considers appropriate. By definition, an article placed in the reference list of another article is then said to have been cited by that article (Smith & Hazelton 2008). The term bibliometrics is often defined as the use of mathematical techniques to investigate publishing and communication patterns in the distribution of information (Diodato 1994). Examining what has been cited by whom represents one of the most common methods used in bibliometrics and is generally known as citation analysis.

In order to track citations, an article (and the source in which it appears) needs to have been included within a specific database or citation index. Two examples of databases in this regard are the Web of Science® (WoS) by Thomson Reuters and Scopus® by Elsevier. Further information on both databases can be found on their respective websites (Scopus Website What does it cover? 2012, Thomson Reuters Website Web of Science 2012). The tracking and subsequent analysis of citations allows various aspects of a journal's bibliometric performance to be examined, and for better or for worse, ranked and rated against others. Probably the most well-known bibliometric assessment

measure is the journal impact factor, which utilizes the WoS database (Thomson Reuters Website Web of Science 2012). A comparatively newer metric is the SCImago Journal Rank (SJR), which utilizes the Scopus database (SCImago Journal & Country Rank Website 2012).

### **Why Does Bibliometrics Matter?**

Bibliometric research has become increasingly relevant for the nursing profession for a few key reasons. Firstly, as research producers, nursing scholars need to disseminate their findings in what has become an increasingly competitive market. There exist many options when choosing a journal in which to publish, and this in turn rarely makes the choice of publication venue a clear-cut decision (Lewallen & Crane 2010). Researchers will often ask "to what journal should I submit my work?", "what journal offers the highest 'impact' for my findings?" and so on. Secondly, as research consumers, nursing scholars need to know how to maximize the available literature when they are searching for knowledge (Smith & Hazelton 2011). When choosing a journal to read, questions such as "which journals are the most read and most cited" are often asked. Thirdly, as scholars in all disciplines now compete for increasingly scarce research funding, it is essential to present one's research track record (such as scholarly publications) in the best possible light. The judicious use of article citations, journal impact factors, and SJR scores can be useful here.

As a result, having a clear understanding of relevant bibliometric concepts combined with the thoughtful use of bibliometric measures becomes a clear way forward for demonstrating not only the significance of one's research question, but also an applicant's capabilities to selection committees and funding review panels. While the ultimate relevance of bibliometrics to an individual nursing scholar will depend on a combination of factors, if one is to prosper in the highly competitive arena of modern health research, a reasonably sophisticated understanding of bibliometrics is clearly required (Smith & Hazelton 2011).

### **Bibliometric Research In The Nursing Field**

An increasing number of bibliometric studies have focused on, and been published in, the field of nursing. A few of these are summarized below for illustrative purposes, although it is important to note that this is just a selection of the bibliometric literature in nursing. One of the earliest studies appears to have been published in 1984 by the inventor of the impact factor, Eugene Garfield, who compiled a list of the most highly-cited articles in nursing (Garfield 1984), which he deemed the citation classics. Other authors also began conducting bibliometric research in the nursing field around this time. In 1984, for example, Brown and colleagues examined the characteristics of research among nursing journals (Brown, Tanner, & Padrick 1984); in 1993 Norris examined nursing journal authorship patterns (Norris 1993); in 2000 O'Neill and Duffey published a study describing the communication of research and practice knowledge in nursing literature (O'Neill & Duffey 2000); in 2004 Estabrooks and colleagues examined the research utilization literature in nursing (Estabrooks et al. 2004); and in 2008, Oermann and colleagues looked at the dissemination of research within clinical nursing journals (Oermann et al. 2008). In 2009, Polit and Beck described the international differences in nursing research (Polit & Beck 2009), while in 2010 Oermann and colleagues published another study describing the dissemination of research in clinical nursing journals (Oermann et al. 2010). In the same year, Smith published a longitudinal analysis of bibliometric and impact factor trends among the core international journals of nursing (Smith 2010). The issue of nursing journal impact factors has also been studied by Polit and Northam (2011). Finally, some of the most recent bibliometric research in the nursing field appears to have been undertaken by Wiles and colleagues (Wiles et al. 2012) and Hunt and colleagues (Hunt et al. 2012). These articles are only a sample of the increasing body of bibliometric knowledge that has now been published in the nursing profession.

## Mapping The Nursing Literature

Aside from the individual studies mentioned above, bibliometric research has also been undertaken in more systematic ways. A task force for mapping the literature of nursing journals was established in the 1990s by the Nursing and Allied Health Resources Section (NAHRS) section of the Medical Library Association (MLA), as part of a larger project to help characterize the literature of allied health fields using a common bibliometric methodology (Schloman 1997, 1999). Numerous articles have now been published across a variety of nursing specialities including home health nursing (Friedman 2006), public health and community nursing (Alpi & Adams 2007), rehabilitation nursing (Spasser & Weismantel 2006), paediatric nursing (Taylor 2006), emergency nursing (Alpi 2006), nursing administration (Galganski 2006), nephrology nursing (Allison 2006), nurse-midwifery (Seaton 2006), and others.

## Where Can I Learn More?

Various journal articles, books and websites have explored the topic of nursing bibliometrics in detail, some of which are listed (sorry, cited!) in the reference list below.

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