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What happens to our ideas?

A bibliometric analysis of articles in Social Work in Health Care in the 1990s

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Abstract

Scholars spend a considerable amount of time reflecting upon their professional work. When individuals decide to communicate their professional thoughts beyond informal venues, the penultimate expression of their reflection is the peer reviewed journal article. The study reported here entailed a bibliometric analysis of articles appearing in the journal *Social Work in Health Care* during the 1990s, in order to better understand what happens to our ideas after they appear in a peer reviewed journal article.

Introduction

Scholars, whether they are practitioners or academics or both, spend a substantial amount of time thinking about their professional concerns. Sometimes those thoughts are simply reflected upon, never to enter an informal or formal exchange of ideas. Other times, these thoughts are discussed with students or colleagues, and sometimes they are more formally expressed at a local, national or international professional conference. Alternatively, a scholar may express her or his ideas in a newsletter, monograph or book. Sometimes after much thought, discussion and interaction with peer reviewers, editors and copy editors, a scholar's thoughts see the light of day in a peer reviewed journal article. Yet, the publication of an article in a journal is not the end point in the life of the article.

In the social work profession, the examination of the life of articles beyond the point of publication has a history dating back at least to the 1970's (e.g., Jayaratne, 1979; Lindsey, 1976; 1978a; 1978b; Rosen, 1979). These studies used various bibliometric techniques, an approach to the study of scholarly communication that includes citation analysis. These researchers found, in part, that social work professionals tended to publish comparatively less than scholars in some other fields. Furthermore, it was also observed that the distribution of published works was positively skewed, that is, a small proportion of authors published many articles. These and other authors replicated and extended this work during the subsequent decades, with similar results. For instance, they found similar positive skewing of publication rates; that social work editorial board members did not publish very much when compared to peers in other

social science professions; that individual social work academics and individual schools had quite variable rates of publication; that while social work faculty articles do get cited, they get cited less than articles by psychology faculty; and that social work faculty articles in non social work journal articles were more frequently cited than their articles in social work journals (e.g., Baker & Wilson, 1992; Fox & Faver, 1985; Green & Bentley, 1994; Green & Hayden, 2001; Green, Baskind & Bellin, 2002; Ligon & Thyer, 2001; Pardeck, Chung, & Murphy, 1995; Pardeck, 2002; Robbins, Corcoran, Hepler & Magner, 1985; Thyer & Polk; 1997).

Bibliometrics have also been used to examine: libraries' social work holdings; the publication of books and dissertations in social work over time; the body of work of individuals; publications in particular content areas such as substance use and welfare; the interaction of social work and other fields; the relationships among journals in the social work journal network; the use of social science literature in social work journals; the impact of social work journals; and the relationship of citations to reputation as a social work researcher (e.g., Baker, 1991; 1992; Cheung, 1990; Bush, Epstein & Sainz, 1997; Holden, Rosenberg & Barker, 2005a; Howard & Howard, 1992; Jones, & Jones, 1986; Rothman, Kirk & Knapp, 2003; Wormell, 2000a; 2000b). Key literature related to the current study will be summarized below. A comprehensive review of bibliometrics is available elsewhere (Holden, Rosenberg & Barker, 2005b).

Impact of journals

While the authors fully understand that impact can take many forms, in the current study it has been narrowly conceptualized as the impact of articles,

operationalized as citations (c.f., Narin, Olivastro & Stevens, 1994). That is, the number of articles that cite the target article. Criticisms of this approach will be considered in the Discussion section.

One can examine impact using journals as the unit of analysis. One social work study (Bush, Epstein & Sainz, 1997) examined the impact of social science sources (journals and books) on three key social work journals for the 1956 to 1992 period. They found a general increase (although a decline in the last two years studied) in the number of references in the articles in these journals. The greatest mean number of references across time were to social science books, followed by social science journals.

Studies of journal impact often use the impact factor score (IFS), which is an indicator of a journal's impact that is derived from citations (Garfield, 1999). The IFS for journal X for 2002 is computed by dividing the number of citations during 2002 (in journals in the Institute for Scientific Information (ISI) Web of Science (WoS) databases) to articles in the journal X in 2000 and 2001, by the number of articles in the journal X in 2000-01 (ISI, 1994). Lindsey and Kirk (1992) examined core social work journals' IFSs and found that *Social Work* (SW) had the highest IFS during the 1981-89 period (mean = .70). To provide a more current comparison, the authors examined the IFSs for both SW and *Social Work in Health Care* (SWHC) from 1990-1999. SW had a mean IFS of .935 for the period and SWHC had a mean IFS of .276. As Lindsey and Kirk point out, such findings may be due in part to the vast differentials in the distribution of SW, relative to specialty journals. NASW (1997) reported a circulation of 163,000+ for SW and 1,007 for SWHC. SW had an IFS 3.4 times larger than SWHC during the 1990s and a reported

(1997) circulation that was 161 times larger. Lindsey and Kirk's point received support from Howard and Howard (1992), who found a correlation of $r = .68$ between the journal citation rates and the size of the journals' circulation in their study of 12 substance abuse journals. Obviously, one needs to be cautious about any bibliometric indicator's psychometric properties. IFSs have received support as an indicator of journal quality (Christenson & Sigelman, 1985; Saha, Saint, & Christakis, 2003), although they have been critiqued as an inappropriate indicator of an individual scholar's impact as well as for other reasons (e.g., Frank, 2003; Furr, 1995; Garfield, 1996; Glanzel & Moed, 2002).

Impact of journals/articles

One can move beyond journals as the sole unit of analysis, by adding a specific focus on the articles within those journals. The Howard and Howard (1992) study mentioned above focused on 541 articles published in 12 drug and alcohol journals during 1984. They examined citations to those articles during the 1984-1988 period and found that 71.2% of the articles were cited at least once and that the mean number of citations for the group of articles was 3.48. The top five articles were cited a total of 58, 41, 39, 29 and 28 times respectively. Nieminen and Isohanni (1997) created a sample of articles from the 1987-92 period focusing on therapeutic communities, but then included analyses at the level of journals. In terms of, citations at the article level (recorded in 11/94), they reported that 39% of the articles were not cited during the study period.

Dumas, Logan and Finley's (1993) bibliometric analysis included articles from the journals *British Journal of Social Work* (BJSW) and SW during the 1984-91 period.

They reported that *BJSW* was cited 435 times and *SW* was cited 2276 times during those eight years. In terms of individual articles the top five articles in *BJSW* were cited 16, 13, 11, 8 and 8 times respectively, whereas the top six in *SW* were cited 29, 27, 23, 22 and 21 (two articles) times respectively. The authors noted that using the total number of cites without controlling for time made interpretation of this finding problematic, in that for both journals, all of the highly cited articles came from the 1984-1986 period (the first three years of the study period). Other factors such as international differences in citation norms might have contributed to this finding as well.

In summary, there is a history of bibliometric research in social work that has begun to reveal the patterns of publications by individuals and the impact that that scholarship has produced. These bibliometric techniques have also been used from different perspectives to increase our understanding of other aspects of scholarly communications in social work. One particular aspect that has received attention is the impact of journals and the articles within those journals. Given this intriguing prior work, it was decided to further explore what happens to our ideas through a bibliometric analyses of articles appearing in the journal *SWHC* during the 1990s. The goals were to describe the set of articles, to describe the overall impact of the set and to isolate and describe the subset of articles with the greatest impact.

Method

Sample

The sample for this study consists of articles published in the *SWHC* during the 1990-1999 period. This sample is further restricted to full length articles, including

review articles (e.g., book reviews, editorials, meeting abstracts, corrections, letters, and notes were excluded). All articles in *SWHC* during this time period are covered in the Web of Science (WoS, <http://isi2.isiknowledge.com/portal.cgi/WoS>), which is the source of much of the data for this study. The WoS is a database available from Thomson's Institute for Scientific Information (<http://isi4.isiknowledge.com/portal.cgi>). In January 2004 the WoS database covered approximately 8500 journals.

Time frame

The focus of the current study was on citations in the WoS during the 1990-2002 period, to *SWHC* articles from the 1990-1999 period. The three additional years for the citation period allows a beginning view of the impact of publications from the end of the publication period and a longer time frame in which to consider the impact of publications from earlier in the publication period. Given the amount of time that typically passes between acceptance for publication and actual publication, this approach should provide a fuller picture of an article's impact.

Procedure

A series of General Searches were performed on the WoS for articles in *SWHC* for the period. In instances where data elements could not be coded from the WoS, clarification was sought from the original article, WWW searches (e.g., for an author's CV), and/or from *SWHC* editorial staff. Using the General Search feature allows the possibility of missing citations that have incorrect information regarding the cited article (e.g., incorrect publication years, volumes; pages numbers; etc.). Such mistakes may be discovered by using the WoS Cited Reference search. This was not done here as

it would have required inferences beyond the knowledge of the authors of the current study and the authors assumed that any General Search related errors would likely be random across this population. Data from the WoS searches were then entered in to SPSS 11.0.1 for further analyses.

Measures

The length of the article, number of authors, and number of references in the reference list of the article were recorded from the WoS search results. Additional data was obtained from the WoS search results and calculated as follows. Age of the article was operationalized as the result of subtracting the year of publication from 2002 and adding .5. The .5 was added in order to make the age estimate more accurate. Citations counts for each article were adjusted for time by dividing the citation totals by the age of the article. Two measures, lag time and persistence, were used from Klein and Bloom's (1992) work. Lag time refers to the number of years between publication and first citation (for those articles that were cited in the period under study). As with age, .5 was added to the difference to make it a better estimate of the actual lag time (see Holden, Rosenberg & Barker, 2005a for further explanation regarding this statistic). Persistence was calculated by summing the number of years in which an author's work has been cited. Persistence is obviously more difficult to interpret for more recent articles.

Six citation statistics were included in the current study: cited by self and/or co-authors on original article (c.f., Aksnes, 2003; Fortune, 1992); cited by others; and total cites. Each of these three statistics was also adjusted for the age of the publication.

Diachronous self-citations (Aksnes, 2003) – instances where the article being examined was cited by the author in one of her subsequent articles – are the focus here. Because the unit of analysis is the article in this study, diachronous self-citations are those citations of the article being examined by any of the authors on that article.

Synchronous self-citations are those self-citations contained in the reference list of the article being examined (Aksnes, 2003). While some self/co-author citation may be inappropriate, other instances may be scientifically appropriate (e.g., publications in a long term research program). This position is common in the bibliometric literature (e.g., Klein & Bloom, 1992). Although the analyses in the current study do not distinguish between the inappropriate and the appropriate, these analyses do provide an estimate of the overall size of this factor. The adjustment for age makes the outcomes for articles later in the time period somewhat more comparable with outcomes for articles earlier in the time period. A second time adjusted analysis will be provided in Table 3. Statistics representing *concentration* (the percentage of papers that receive 50% of the citations), *citedness* (the number of citations an article needs to be in the top 1% of papers), and *uncitedness* (percentage of papers that had not been cited in the study period) were computed as well (ISI, 1999; Katz, 1999).

Dumas, Logan and Finley (1993) examined the subjects of the articles using the *Social Work Research and Abstracts* codes. That approach was considered and then discarded in the current study because of potential coding and analytic difficulties (e.g., reliability and validity). Given that the unit of analysis here is the article, adjustments for the number of authors were not used.

Results

Description of sample

Examination of the journal and searches of the WoS resulted in a sample of 366 articles for analysis. A series of exploratory analyses were undertaken. The number of publications per year ($M=36.6$) was variable over the time period ranging from 21 articles in 1994 to 53 articles in both 1995 and 1997. For the entire sample, there were a total of 1291 citations to these articles during the 1990-2002 period. The overall diachronous self/co-author citation rate was 9.2% (119/1289 – reduced n from missing data).

Although means are also reported in Table 1 the focus will be on medians in the text regarding Table 1, given the non-normal distributions of these variables. As can be seen, the typical article was: 16 pages long; had 2 authors; 27 references and was cited for the first time 3.5 years after publication. This typical article was cited in 2 different years after it was published and a total of 2 times. In regards to the self/co-author citation issue, the typical article was not cited in this fashion ($M = .33$; $Mdn = 0$). In terms of time adjusted impact, it can be seen that the typical article was cited .29 times per year (.27 times per year by others). How was the impact distributed across the sample of articles? It was observed that 15.8% of the papers received 50% of the citations (concentration), papers needed 20 or more citations to be in the top 1% of papers (citedness), and 20.2% of the papers had not been cited as of the end of 2002 (uncitedness).

Insert Table 1 about here

Did the articles' structural variables, such as article length, have any relationship to the articles' impact? The number of references (*Kendall's Tau* $b = .16$; $r = .26$) and the number of pages (*Kendall's Tau* $b = .15$; $r = .26$) were significantly correlated ($p < .01$, two tailed) with the total number of citations per year.

Adair and Vohra (2003) recently reported relatively consistent increases in the number of references in articles from selected journals in psychology, sociology, biology and physics for the 1972-2000 period. The average increase across the seven journals they studied was from 39 references per article during the 1990-1992 period to 48.1 references per article during 1996-1998. The comparable mean numbers of references for *SWHC* were 27.7 and 32.7 per article during the 1990-1992 and the 1996-1998 periods, respectively (a statistically significant increase, Mann-Whitney U Test, $p < .05$).

Increases in multiple authorship of articles in social work have been noted for earlier time periods (Kirk & Rosenblatt, 1980: 1934-1977 period; Grinnell & Royer, 1983: initial publication through 1/1/79). More recently, Gelman and Gibelman (1999) reported an increase in multiple authorship between the 1973-77 and 1993-97 periods (c.f. Rubin & Chang, 2003 re: increases in multiple authorship in health economics). For *SWHC*, there was a significant increase in the number of authors per article between the 1990-91 time frame and 1998-99 (M 's = 2.0 & 2.43 respectively, Mann-Whitney U Test, $p < .05$).

Insert Table 2 about here

Description of high impact groups

In terms of high impact (as measured by citations) the ten articles with most impact (sometimes more than ten are reported due to ties) on each of four variables are identified in Table 2. The bolded numbers in each of the first four columns represent the group of articles with the highest impact for the 1990-2002 time period. Table 2 actually includes 20 articles. This was necessary because of ties and the fact that some articles were in the top ten on one, two or three of the four variables, but not all four. Seven articles were in the top ten on all four impact variables.

As can be seen for this higher impact group in Table 2, the median number of total citations was 15 (1.56 per year) and the median number of total citations by others was 13 (1.38 per year). In terms of other variables, the typical high impact group article was 19 pages in length, had 34.5 references, was first cited 2.5 years after it was published, and was cited in 7 different years subsequent to publication. While one would expect the higher impact group described in Table 2 to be different than the rest of the sample (because of the manner in which these two groups were formed), some might ask, are those differences statistically significant? The high impact group in Table 3 was therefore contrasted with the remainder of the sample and these differences are detailed in the last two rows of Table 2. To maintain an analysiswise alpha level of .05 for the eight contrasts, a Bonferroni adjustment was used (Cliff, 1987). This meant that

each of the eight contrasts was tested at an alpha level of .00625 (Mann-Whitney U Test, two-tailed). All eight contrasts were statistically significant with the higher impact group having more citations (for each of the four approaches to measuring citations) as well as more pages and references in their articles. While the higher impact group articles had significantly shorter lag times and greater persistence, the meaning of these differences is less clear because of the impact of the age of articles on these measures.

Insert Table 3 about here

In order to better understand the effect of time on these results, an alternative analysis of high impact articles controlling for the age of articles was conducted and the results are provided in Table 3. Only those articles from the same publication year are compared meaning that they have had similar amounts of time in which to be cited (c.f., Glanzel & Moed, 2002 re: citation windows). Impact data for the top 2 articles for each year from 1990-1999 are included. When two or more articles were tied for second place on a variable all of those articles are included. Articles that appeared previously in Table 2 have an abbreviated reference in the last column (authors and year), while new high impact articles making their first appearance in Table 3 have authors, year and title information in the last column. As can be seen, 15 new high impact articles appear on this list, the bulk of those being published in 1997 or later. Four articles that were included in Table 3, did not make the cut offs for inclusion in Table 3.

Discussion

This study examined a decade's worth of publications in the journal *Social Work in Health Care*. It provided descriptive data regarding these 366 articles and the 1291 citations that they received. A group of high impact articles was identified, described and compared to the remainder of the sample of articles. A second group of high impact articles for each year of publication was also described.

In the current study, fewer references per article in SWHC were observed compared to the mean number of references for the psychology, sociology, biology and physics journals examined by Adair and Vohra (2003). Yet, similar to Adair and Vohra (2003), the number of references per article in SWHC increased between the 1990-92 and 1996-98 periods. Whether this change is due to the expansion of the body of information in the social sciences, the ease of electronic retrieval, other changes in scholar's referencing practices, some combination of these, or perhaps other factors that can not be determined from the data collected in the current study, remains to be determined. The observation in the current study that the population of articles had fewer references than other fields is consistent with Lindsey's (1978a) early findings about social work journal articles.

A number of other authors have reported increases in multiple authorship as noted above. There was a statistically significant increase in the number of authors per article in SWHC between 1990-91 and 1998-99, which is consistent with prior findings. Given technology facilitated increases in regional, national and international collaboration, this is not a surprising change.

With the cautions of many bibliometricians regarding inter-field comparisons firmly in mind, we note that Howard and Howard (1992) found that 28.8% of the 1984 drug and alcohol journal articles in their study had not been cited during the study period and that the mean number of citations for the sample was 3.48. The top five articles were cited a total of 58, 41, 39, 29 and 28 times respectively. Nieminen and Isohanni (1997) reported that 39% of the therapeutic community articles they examined were not cited during the study period. Dumas, Logan and Finley (1993) found that the top five articles in BJSW were cited 16, 13, 11, 8 and 8 times respectively, whereas the top five in SW were cited 29, 27, 23, 22 and 21 (two articles) times respectively. In the current study, 20.2% of the papers had not been cited, the mean number of citations was 3.5, and the top five papers were cited 41, 21, 20, 19 and sixteen times respectively. In addition to the cautions mentioned above, readers should remember that the time periods covered in these comparison studies (1984-1988; 1987-94; 1984-91; respectively) were shorter than the period in the current study (1990-02).

What predicts the amount of impact that will be produced by an article? The number of references and the number of pages were significantly correlated with the total number of citations received per year for this set of SWHC articles (r 's = .26 & .26). In other words, the greater the number of references and the greater the length of an article, the more likely it was to be cited. In their study of 448 journal articles in psychiatry journals, Meittunen & Nieminen (2003) found that topic, study design, country of correspondence and number of authors were predictive of the number of citations. Perhaps other features of studies/articles that were not measured in the

current study (e.g., primary research versus other; review article versus other; populations covered; etc.) would be more predictive of impact than the variables considered here. It will be important in such studies in the future to look at a set of articles with equivalent follow up periods (in which to determine impact). This area of study merits future investigation.

In terms of the subset of high impact articles, there was some change in the articles included in the top ten depending on the statistic used in Table 2. Some articles shifted position within the top ten, some dropped out and some were added depending on the analysis. Even though the adjustment for time makes the results more comparable for articles at the beginning and end of the time period, they still are not entirely comparable. This is born out in Table 3. When the analysis focuses on the top two articles from each year, 15 new articles were included in the high impact group. As alluded to above, the distribution of citations for any two articles from different years may be quite different and therefore it may be difficult to compare their relative impact until some distant point in the future when neither continues to be cited.

In terms of caveats, some readers may be thinking that the current study misses some of the impact produced by social workers' ideas. It does. Social workers' ideas have impact on the field via activities such as discussions with students and colleagues; teaching and supervision; presentations at a local, national or international conferences; publication in newsletters, monographs, books or in a variety of Internet outlets. But the mechanisms for studying the impact of such venues are less developed. More important to us is the issue of the quality of the venue used to disseminate ideas. Despite the fact

that peer review for journals can be problematic (cf., Lindsey, 1978b, 1988; 1991; 1999; Pardeck & Meinart, 1999; Thyer & Myers, 2003), we would argue that it is the system that produces the highest quality results. Seipel (2003) recently examined social work academics' perceptions of the relative value of different types of publication when making tenure decisions. He found that peer reviewed venues were considered more valuable and that peer reviewed journal articles were considered the most valuable overall. So not only do we have evidence that peer reviewed journal articles are considered the most valuable venue for publication, this is the venue for which we have a mechanism to study impact via bibliometrics (the WoS databases). *There may be many ways of saying what we know, but they are not all equal.*

The current study focused on only a single, peer reviewed journal, but did so for longer time periods than studies such as Howard and Howard (1992) or Dumas, Logan and Finley (1993). The limitations of bibliometric analyses have been noted elsewhere by both ourselves and others (e.g., Baker, 1990; 1991; Cnaan, Caputo & Shmueli, 1994; Holden, Rosenberg & Barker, 2005a; Kirk, 1984; Krueger, 1993; 1999; Lindsey, 1978a, 1980; 1982; 1989; MacRoberts & MacRoberts, 1989; Phelan, 1999). A number of these potential limitations do not seem relevant to the current study.

For instance, the focus in this study was not on the quantity of publications by individuals or schools, but rather on the impact of publications in a single journal. The current study did not rely on authors' self reports regarding publications, but rather proceeded from the actual publication in the public record. While some critics have noted that the WoS does not contain all journals, this criticism does not apply here in

that SWHC is covered in the WoS for the entire 1990-99 period. As noted by MacRoberts and MacRoberts (1989), homonyms (authors sharing the same last name and initials) and synonyms (e.g., different initials used by the same author) are potential problems in a study such as this, but we are confident in our coding, since in the majority of instances where there were questions, the answers could be determined by examining the original article, searching the WWW (faculty CVs are often posted now) or asking the SWHC editorial staff. The study was confined to one professional area – health social work – and thereby avoids/minimizes the concern that bibliometric comparisons across fields may be invalid due to different citation patterns in different fields (cf., Narin, Olivastro & Stevens, 1994).

On the other hand, both general research design and more specific bibliometrics related caveats may be relevant. While this was a sample of articles with virtually no missing data, it is a sample of a specific journal's articles from a specific time period, and therefore the results may not generalize to other journals or other time periods for this journal. In terms of concerns regarding bibliometrics, critics in the past have suggested that authors may be referencing work that is incorrect, not referencing the best work, or not correctly referencing satisfactory work. This may have occurred in relation to the articles in SWHC during this time period. There are no apparent reasons why this potential bias would be more or less of a factor for SWHC than any other journal. Second, we have seen no evidence that this bias in fact occurs in the social work literature and therefore would suggest that until such evidence has been reported, the profession act under the assumption that most authors value their reputation for quality

work and know that this reputation is put on the line each time they publish. Therefore, they should be motivated to cite others work appropriately, as they are always at risk for exposure for doing otherwise (cf., Franck, 2002). A potential concern that is beyond the scope of this article is that citation analysis may not reflect the impact a journal has on professionals who are reading it (but not writing and citing it).

Lindsey (1989) has suggested that citation counts may be best at distinguishing articles at the upper and lower ends of the distribution, based on the distributions he observed in a number of fields. He states “[t]he difference between the article that attracts no citations and one that attracts two or three over a seven year period is not that substantial. Thus, in the heavily populated middle range of the continuum of quality, citation counts are of doubtful utility” (p. 196). Cole (2000) notes that he and his colleagues have voiced similar concerns, as have others (Kostoff, 2002; Plomp, 1990). Yet, some might argue that citations are clearly discernable units on a ratio level scale that has an absolute zero point and equal intervals. These are psychometric questions worthy of further attention.

Finally, it has been previously noted that authors may be referencing themselves and thereby inflating citation rates. While the current study can not address the issue of appropriateness of self/co-author citation, it does provide a glimpse at the overall effect of this behavior. The rate of diachronous self/co-author citation rate was 9.2% for the entire sample. The number of self/co-author cites ranged from 0 to 9 (0 – 1.38 per year) with a mean of .33 (.05 per year). Aksnes (2003) examined a sample of over 45,000 Norwegian science publications from the 1981-1996 period and found that the

diachronous self-citation (self and co-author combined) rate for the overall data set was 21% (minimum: 17%; maximum: 31%; psychology/psychiatry: 21%). Although the rate of self-citation in this sample is less than the rates found by Askness, further examination of the prevalence of this phenomena, in different journals and different time periods in social work is warranted.

The study presented here represents only one approach to using bibliometric indicators to examine a journal's impact. For instance, Furr (1995) explored the impact of 22 well known social work journals by examining the IFS for each and comparing that to a sociological bibliometric measure – core influence (CI). CI focuses on citation to the target journal from core journals for the profession of interest. In Furr's study, self-citations from a core journal to itself were excluded. Furr used 1991 data and reported that SWHC had an IFS of .180 (rank of 14 in this set of journals). Yet, when Furr computed the CI measure, SWHC's rank in this set of journals improved to 11. This is yet another example of the utility of bibliometric methods for summarizing large bodies of raw data into more comprehensible forms. The range of potential bibliometric research topics is quite broad.

In conclusion, scholars assume that colleagues read, think about and use their ideas. But that is often an assumption. Bibliometric analysis allows us to move a bit beyond that assumption, to better answer the question: *What happens to our ideas?*

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Table 1. Descriptive statistics for *Social Work in Health Care* articles for 1990-1999 (n=366).

	N of pages	N of authors	N of references	Lag time to first citation ¹	Persistence	Self \ Co-author cites	Other cites	Total cites	Self \ Co-author cites per yr.	Other cites per yr.	Total cites per yr.
Minimum	6.0	1	0	.5	0	0	0	0	0	0	0
Maximum	45.0	9	163	11.5	10	9	33	41	1.38	2.9	3.6
Mean (SD)	16.8 (5.23)	2.2 (1.48)	31.0 (19.5)	3.7 (1.84)	2.3 (2.1)	.33 (.95)	3.2 (3.97)	3.5 (4.28)	.05 (.13)	.40 (.43)	.44 (.47)
Median	16.0	2.0	27.0	3.5	2.0	0	2.0	2.0	0	.27	.29

Note. n's for some analyses are slightly smaller due to missing data for particular variables.

¹ Only articles that were cited are included in this statistic.

Table 2. Citation analysis of high impact articles in *Social Work in Health Care*.

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title.
41	33	3.57	2.87	41	95	3.5	9	Holden, G. (1991). The relationship of self-efficacy appraisals to subsequent health related outcomes: A meta-analysis.
21	21	2.47	2.47	17	70	1.5	7	Abbott, A. A. (1994). A feminist approach to substance-abuse treatment and service delivery.
20	20	1.60	1.60	17	28	3.5	10	Ahmed, F., McRae, J. A., & Ahmed, N. (1990). Factors associated with not receiving adequate prenatal care in an urban black population: program planning implications.
19	18	2.00	1.89	44	163	2.5	7	Holden, G., Rosenberg, G., Barker, K., Tuhim, S., & Brenner, B. (1993). The recruitment of research participants: A review.

Table 2 (cont' d).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title.
16	16	1.28	1.28	19	51	2.5	9	Abramson, J. S. (1990). Enhancing patient participation - clinical strategies in the discharge planning process.
16	16	1.28	1.28	23	54	3.5	7	Siegel, K. (1990). Psychosocial oncology research.
16	12	1.52	1.14	22	32	1.5	7	Fillit, H. Howe, J. L., Fulop, G., Sachs, C., Sell, L., Siegel, P. Miller, M., & Butler, R. (1992). Studies of hospital social stays in the frail elderly and their relationship to the intensity of social-work intervention.
15	15	1.76	1.76	19	24	3.5	6	Galinsky, M. J. & Schopler, J. H. (1994). Negative experiences in support groups.
15	15	1.58	1.58	15	43	2.5	7	Bonuck, K. (1993). AIDS and families - cultural, psychosocial, and functional impacts.

Table 2 (cont' d).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title.
15	15	1.30	1.30	18	26	2.5	7	Black, R. (1991). Women's voices after pregnancy loss - couples patterns of communication and support.
15	13	1.76	1.53	23	27	2.5	7	Jones, J. (1994). Embodied meaning - menopause and the change of life.
13	13	1.53	1.53	17	28	2.5	5	Cornelius, D. S. (1994). Managed care and social-work - constructing a context and response.
14	13	1.47	1.37	21	52	2.5	6	Davisali, S. H., Chesler, M. A., & Chesney, B. K. (1993). Recognizing cancer as a family disease - worries and support reported by patients and spouses.
13	13	1.37	1.37	18	30	2.5	6	Ross, E. (1993). Preventing burnout among social-workers employed in the field of AIDS/HIV.
13	13	1.04	1.04	16	35	3.5	9	Coulton, C. (1990). Research in patient and family decision-making regarding life sustaining and long term care.

Table 2 (cont' d).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title.
11	9	2.44	2.00	14	34	1.5	4	Miller, P. J., Hedlund, S. C., Murphy, K. A. (1998). Social work assessment at end of life: Practice guidelines for suicide and the terminally ill.
13	4	2.00	.62	27	29	.5	5	Buchanan, R. J. (1996). Medicaid eligibility policies for people with AIDS.
9	9	1.38	1.38	13	18	3.5	4	Herbert, M. & Levin, R. (1996). The advocacy role in hospital social work.
7	6	1.56	1.33	19	71	2.5	3	Bourjolly, J. N. (1998). Differences in religiousness among black and white women with breast cancer.
7	6	1.56	1.33	19	36	2.5	3	Corcoran, J. (1998). Consequences of adolescent pregnancy / parenting: A review of the literature.

Table 2 (cont' d).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title.
7	4	1.04	.62	13	18	.5	3	Minimum for higher impact group
41	33	3.57	2.87	44	163	3.5	10	Maximum for higher impact group
15.5 (7.1)	14.0 (6.3)	1.72 (.57)	1.53 (.49)	21.1 (8.0)	47.3 (33.4)	2.6 (.83)	6.4 (2.0)	Mean (SD) for higher impact group
15	13	1.56	1.38	19	34.5	2.5	7.0	Median for higher impact group
2.84 ¹ (2.8)	2.56 ¹ (2.7)	.27 ¹ (.34)	.22 ¹ (.33)	16.5 ¹ (4.9)	30.1 ¹ (18.0)	3.8 ¹ (1.87)	2.1 ¹ (1.84)	Mean (SD) for rest of population

Note. Bolded numbers for individual articles represent results that are in the top ten for that variable.

¹ Comparison between the two groups was statistically significant at $p < .00625$, 1 tailed.

Table 3. Citation analysis of high impact articles in *Social Work in Health Care* by year of publication.

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title (for entries not in Table 2).
1990								
20	20	1.60	1.60	17	28	3.5	10	Ahmed, F., McRae, J. A., & Ahmed, N. (1990).
16	16	1.28	1.28	19	51	2.5	9	Abramson, J. S. (1990).
16	16	1.28	1.28	23	54	3.5	7	Siegel, K. (1990).
1991								
41	33	3.57	2.87	41	95	3.5	9	Holden, G. (1991).
15	15	1.30	1.30	18	26	2.5	7	Black, R. (1991).
1992								
16	12	1.52	1.14	22	32	1.5	7	Fillit, H. Howe, J. L., Fulop, G., Sachs, C., Sell, L., Siegel, P. Miller, M., & Butler, R. (1992).
12	8	1.14	.76	26	51	3.5	7	Soskolne, V. & Auslander, G. K. (1992). Follow-up evaluation of discharge planning by social workers in an acute-care medical center in Israel.
11	11	1.05	1.05	17	13	3.5	6	Berkman, B., Walker, S., Bonander, E., & Holmes, W. (1992). Early unplanned readmissions to social work of elderly patients: Factors predicting who needs follow-up services.

Table 3 (cont' d).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title (for entries not in Table 2).
11	11	1.05	1.05	22	23	2.5	6	Kugelman, W. (1992). Social-work ethics in the practice arena: A qualitative study.
1993								
19	18	2.00	1.89	44	163	2.5	7	Holden, G., Rosenberg, G., Barker, K., Tuhim, S., & Brenner, B. (1993).
15	15	1.58	1.58	15	43	2.5	7	Bonuck, K. (1993).
1994								
21	21	2.47	2.47	17	70	1.5	7	Abbott, A. A. (1994).
15	15	1.76	1.76	19	24	3.5	6	Galinsky, M. J. & Schopler, J. H. (1994).
15	13	1.76	1.53	23	27	2.2	7	Jones, J. (1994).
1995								
10	10	1.33	1.33	17	22	2.5	5	Cushman, L. F., Evans, P. & Namerow, P. B. (1995). Occupational stress among AIDS social-service providers.
10	10	1.33	1.33	16	31	3.5	5	Davidson, K. W. & Foster, Z. (1995). Social work with dying and bereaved clients - helping the workers.
10	10	1.33	1.33	16	24	3.5	4	Frazier, P. A., Davis-Ali, S. H., & Dahl, K. E. (1995). Stressors, social support, and adjustment in kidney-transplant patients and their spouses.

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title (for entries not in Table 2).
1996								
13	4	2.00	.62	27	29	.5	5	Buchanan, R. J. (1996).
9	9	1.38	1.38	13	18	3.5	4	Herbert, M. & Levin, R. (1996).
7	7	1.08	1.08	17	19	4.5	3	Volland, P. (1996). Social work practice in health care: Looking to the future with a different lens.
1997								
7	7	1.27	1.27	14	4	3.5	3	Deegan, P. E. (1997). Recovery and empowerment for people with psychiatric disabilities.
6	4	1.09	.73	18	23	2.5	4	Sormanti, M., Kayser, K., Strainchamps, E. (1997). A relational perspective of women coping with cancer: A preliminary study.
5	5	.91	.91	8	18	1.5	4	Katz, D. A. (1997). The profile of HIV infection in women: A challenge to the profession.

Table 3 (cont'd).

Total cites	Total cites by others	Age adjusted total cites	Age adjusted total cites by others	N of pages	N of references	Lag time to first cite	Persistence	Author(s) (publication year). Title (for entries not in Table 2).
1998								
11	9	2.44	2.00	14	34	1.5	4	Miller, P. J., Hedlund, S. C., Murphy, K. A. (1998).
7	6	1.56	1.33	19	71	2.5	3	Bourjolloy, J. N. (1998).
7	6	1.56	1.33	19	36	2.5	3	Corcoran, J. (1998).
6	6	1.33	1.33	11	21	.5	3	Gilbar, O. (1998). The relationship between burnout and sense of coherence in health social workers.
6	6	1.33	1.33	22	29	2.5	3	Furr L. A. (1998). Psycho-social aspects of serious renal disease: A review of the literature.
1999								
4	2	1.14	.57	18	54	2.5	2	Globerman, J. (1999). Hospital restructuring: Positioning social work to manage change.
3	3	.86	.86	13	22	2.5	2	Dolgin, M. J., Somer, E., Buchvald, E. & Zaizov, R. (1999). Quality of life in adult survivors of childhood cancer.
3	3	.86	.86	20	61	1.5	2	Van Hook, M. P. (1999). Women's help-seeking patterns for depression.

