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David R. Hodge and Jeffrey R. Lacasse

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Evaluating Journal Quality: Is the H-Index a Better Measure Than Impact Factors?

David R. Hodge[1] **and Jeffrey R. Lacasse**[1]

Abstract

Objectives: This study evaluates the utility of a new measure—the h-index—that may provide a more valid approach to evaluating journal quality in the social work profession. **Method**: H-index values are compared with Thomson ISI 5-year impact factors and expert opinion. **Results**: As hypothesized, the h-index correlates highly with ISI 5-year impact factors; but exhibits closer agreement with expert opinion, particularly with high familiarity disciplinary journals. **Conclusions**: This evidence of convergent and discriminatory validity suggests that the h-index may have some utility in assessing social work journals. Notable advantages of the h-index include its compatibility with the profession's applied research culture and its ability to be used with essentially all journals in which social workers publish.

Keywords

h-index, impact factors, journal quality, bibliometrics

The quality of social work's academic journals is an important professional concern (SSWR Presidential Task Force on Publications, 2008). Journal quality influences the venue selected to publish new findings, the tenure and promotion process, funding success, and even departmental rankings (Cameron, 2005; Green, 2008; Ligon & Thyer, 2001). A journal's quality is a primary factor in its readership, impact on practice, and use in educational settings (Cnaan, Caputo, & Shmuely, 1994).

Two methods are commonly used to evaluate journal quality: reputation and citation approaches (Sellers, Perry, Mathiesen, & Smith, 2004). In the former method, a sample of experts is asked to evaluate journals. This approach has been used in social work to determine perceptions of overall quality (Sellers, Mathiesen, Smith, & Perry, 2006) and prestige (Cnaan et al., 1994; Sellers et al., 2004).

Although reputation-based approaches represent an important contribution to the literature, they are characterized by a number of limitations, of which perhaps the most prominent flow from the subjective nature of the approach (Sellers et al., 2004). Journal reputation is ostensibly a proxy for quality and may not reflect actual quality. For instance, journals may be ranked highly due to achieving a level of excellence in the past, even though their current performance is relatively modest. Alternatively, respondents may rank journals with which they are unfamiliar poorly, even though they perform well using other measures.

Due to these limitations, citation approaches are widely used (Furr, 1995). This method relies on the tabulation of citations, based the assumption that higher quality work will be cited more frequently. It is important to note that limitations are also associated with the citation approach. For instance, citations can be listed inaccurately causing miscounts (Spivey & Wilks, 2004). Nevertheless, because this approach is based on actual publication behavior, it is commonly viewed as the most objective, reliable approach to classifying journal quality (Holden, Rosenberg, & Barker, 2005).

The most influential citation approach is the impact factor featured in the Journal Citation Reports (JCR) produced by Thomson ISI Web of Knowledge (Green & Baskind, 2007; Jenson, 2005; Seipel, 2003). The yearly JCR (2008) purport to offer a systematic, quantifiable, objective method to evaluate the leading journals in the world. As Olden (2007) notes, it is recognized as the de facto measure for assessing journal quality across the sciences.

Below, we overview the construction of the impact factor, discuss three limitations that are particularly pertinent to social work, and propose an alternative approach. We are sympathetic to those who question the quantification of journals and other aspects of the social science project (Martinez-Brawley & Zorita, 2007). However, given widespread use of impact factors as a means of ranking journals, from a pragmatic

[1] Arizona State University, Phoenix, USA

Corresponding Author:
David R. Hodge, Arizona State University, CoPP, Mail Code 3920, 411 N. Central Avenue, Suite 800, Phoenix, AZ 85004-0689, USA.
Email: davidhodge@asu.edu

perspective, it seems advisable to ensure that the process used to evaluate journals is as accurate and professionally appropriate as possible.

Impact Factors

A journal's impact factor is defined as the average number of times articles from the journal, which have been published in the past 2 years, have been cited in the current year by journals indexed by Thomson ISI (Journal Citation Reports [JCR], 2008). Thus, the impact factor is calculated by dividing the number of citations in the most recent calendar year (e.g., 2010) by the total number of articles published in the previous 2 years (i.e., 2008–2009). If a journal recorded an impact factor of 1.0 in 2010 that means articles published in 2009 or 2008 have been cited, on average, one time in 2010.

In spite of its wide use, the impact factor has been the subject of numerous criticisms (Brumback, 2009). Many of these are reviewed in the following articles (Cameron, 2005; Favaloro, 2009; Holden, Rosenberg, Barker, & Onghena, 2006; PLoS Medicine Editors, 2006; Seglen, 1997). Three limitations particularly relevant to social work are the use of the 2-year citation window, the reliance on the mean in computing impact factors, and the limited number of journals indexed by Thomson ISI.

2-Year Citation Window

A significant limitation of the impact factor is the 2-year window in which citations are counted (Ligon & Thyer, 2005). This window was originally adopted because of its fit with knowledge dissemination patterns in biochemistry and molecular biology (Leydesdorff, 2008). In such disciplines, knowledge advances quickly and ideas are published rapidly.

In disciplines with different norms regarding either scholarship shelf life or publication times, the 2-year window provides a poor assessment of journal impact (Cameron, 2005). For example, in disciplines with long publication times, significant portions of the literature are simply unavailable to authors at the time the article is written. A study in social psychology found that, for the typical paper at submission, approximately two thirds of the literature that could have affected impact factors was not yet published (McGarty, 2000). In business, a similar study found that 88% of the literature that could theoretically have been included at the time of submission had yet to be published (Harzing & van der Wal, 2009).

Research examining publication times in social work indicates similar problems (Barker & Thyer, 2005; Epstein, 2004). For instance, Barker and Thyer (2005) found that the average time from submission to initial decision letter was 16.35 weeks ($SD = 23.30$) and from acceptance letter to print was 10.90 months ($SD = 6.46$). Studies require time to write, are rarely accepted without at least one set of revisions (which require time to address and another round of reviewer assessment), and to appear in academic databases such as Social Work Abstracts. For a typical manuscript, approximately 27 months might conceivably elapse from the time the literature search was conducted to the time of publication in a database: 4 months (to draft and submit manuscript) + 4 months (to receive initial decision letter with reviewers' comments) + 3 months (to revise and resubmit manuscript) + 4 months (to receive acceptance letter) + 11 months (to publish) + 1 month (to appear in academic database). Thus, an article that appears in a database in March of 2010 could not have any effect on the journal's impact factor because the literature for 2008–2009 was not in existence at the time the literature search was conducted.

Recognizing that it takes longer than 2 years to disseminate and respond to published works in many disciplines, Thomson ISI introduced a 5-year impact factor in 2007 (JCR, 2008). This represents a step in the right direction because, even if publication times could theoretically be eliminated, the applied nature of social work scholarship suggests that research remains relevant far beyond 2 years (Favaloro, 2009; Jacobs, 2009). Using a 5-year window to count citations, instead of a 2-year window, would seem to represent movement toward a more valid measure, although longer time periods have been suggested (Ha, Tan, & Soo, 2006).

It is unclear, however, how widely used the new 5-year impact factor is in social work. In the JCR, the default "impact factor" continues to use the traditional 2-year window. In addition, the method in which the impact factor is calculated, regardless of whether a 2-year or a 5-year window is used, may compound the problems discussed above.

Reliance on the Mean

As noted above, the computation of impact factors is based on the average number of citations. For normal distributions, the mean is an appropriate statistic. When distributions are skewed, means are inappropriate measures of central tendency because they are disproportionately sensitive to the effects of outliers (Weinbach & Grinnell, 1997).

Research suggests that citation distributions are rarely, if ever, normal (Holden et al., 2006; Seglen, 1997). Seglen (1997) found highly skewed citation distributions; only a few articles were close to the population mean. Some 15% of the articles accounted for 50% of the citations. Fifty percentage of the articles accounted for 90% of the citations. Put differently, the most cited half of articles were cited nine times as often as the least cited half.

In short, heavily cited articles distort a journal's impact factor. Review articles, which are common in social work, are one such source of bias because they tend to be disproportionately cited (Leydesdorff, 2008; Seglen, 1997). Another source of bias stems from the choice of journals covered by Thomson ISI.

Journal Coverage

The journals indexed by Thomson ISI directly effects impact factors (Holden, Barker, Covert-Vail, Rosenberg, & Cohen, 2008). In order for journal citations to be counted, the journal

must be indexed. Thomson ISI only covers a small portion of journals (Cameron, 2005). According to some estimates, 126,000 scientific journals exist globally (Whitehouse, 2001). In comparison, Thomson ISI contains data from some 5,900 journals in science and technology and just 1,700 journals in the social sciences (JCR, 2008).

The 2008 JCR, the latest available at the time this article was written, included just 29 journals in the social work category. In addition, many of these journals are arguably interdisciplinary in nature (e.g., *Child Welfare*) or extradisciplinary (e.g., *Journal of Community Psychology*). Thus, relatively few of the over 70 disciplinary social work journals appear to be covered by Thomson ISI (Thyer, 2005).

The underrepresentation of social work journals produces an inaccurate picture of journal citation counts (Jacobs, 2009). Legitimate citations are not factored into impact factors because the journals, and other relevant academic sources (e.g., books), are not covered (Cameron, 2005). Below, an alternative method is proposed for assessing journal quality that may be more accurate and inclusive.

The H-index: An Alternative to Impact Factors

Although recent in origin, the h-index has had a ''spectacularly quick success'' and has become a well-established tool for measuring scientific performance (Radicchi, Fortunato, & Castellano, 2008). Developed by physicist Hirsch (2005), the h-index is a measure of both quality (number of citations) and quantity (number of publications). An h-index value of X is obtained if an entity has X publications that have all been cited at least X times. Thus, a journal would have an h-index value of 20, if 20 of its articles had been cited at least 20 times each. An h-index of 10 would indicate 10 articles that had each been cited at least 10 times.

The h-index, while originally developed to assess scholarship at the individual level, has been used to evaluate journal quality in a number of fields. Included among these are business (Saad, 2006), ecology (Olden, 2007), economics (Harzing & van der Wal, 2008a), pharmacology, psychiatry (Bador & Lafouge, 2010), forestry (Vanclay, 2008), management (Ashkanasy, 2007), and across the sciences (Braun, Glanzel, & Schubert, 2006). Although a journal's h-index value can be calculated with data from Thomson ISI, Elsevier's Scopus, or Google Scholar, it is often used with the latter. This combination offers several advantages relative to Thomson ISI impact factors (Harzing & van der Wal, 2009).

First, the h-index metric is not limited to a fixed time period. The citation window can be set at whatever time frame is most appropriate for a given discipline. H-index values have been calculated using various citation windows, including 1 year (Braun et al., 2006), 2 years (Bador & Lafouge, 2010), 5 years (Harzing & van der Wal, 2008a), and longer (Olden, 2007; Saad, 2006; Vanclay, 2008).

Second, since the h-index is not based on the mean, it attenuates the effect of highly cited articles on computations of journal quality. Indeed, the h-index is unaffected by those few articles that are highly cited. In keeping with its design (Hirsch, 2005), the h-index emphasizes sustained and durable performance, rather than a few one hit wonders. As such, it may more accurately reflects the unit of analysis, which is journals, rather than individual articles (Harzing & van der Wal, 2009).

Third, Google Scholar provides much wider coverage of the social science literature, relative to Thomson ISI (Baneyx, 2008; Harzing & van der Wal, 2008a; Walters, 2009). A number of studies have examined the citation coverage of Google Scholar and Thomson ISI from different perspectives (Bakkalbasi, Bauer, Glover, & Wang, 2006; Clarke, 2008; Jacobs, 2009; Falagas, Pitsouni, Malietzis, & Pappas, 2008; Kulkarni, Aziz, Shams, & Busse, 2009; Kousha & Thelwall, 2008; Meho & Yang, 2007; Mikki, 2010; Smith, 2008). Both databases have their respective advantages and limitations, which are somewhat discipline dependent. In general, Google Scholar captures more citations but more noise (e.g., nonacademic citations). Thomson ISI is more rigorous but fails to harvest many academically relevant citations, particularly in the social sciences. For instance, Jacobs (2009) examined citation coverage for four sociology journals, perhaps the nearest disciplinary neighbor to social work in which comparisons have been conducted (Althouse, West, Bergstrom, & Bergstrom, 2009). She found that Google Scholar, relative to Thomson ISI, captured more citations for every journal, including over twice as many citations for *Gender and Society*.

Although variation exists from discipline to discipline, h-index values derived from Thomson ISI and Google Scholar tend to exhibit modest to strong correlations. Coefficients of .55 to .66 have been reported for management journals (Harzing & van der Wal, 2008b), .61 for disciplinary computer science journals (Franceschet, 2010), .78 for interdisciplinary computer science journals (Franceschet, 2010), and .93 for forestry journals (Vanclay, 2008). Although well correlated, Google Scholar tends to produce higher h-index values due to the wider coverage of academic source material (Franceschet, 2010). Due in part to the perceived increase in accuracy, Google Scholar is increasingly being used in citation-based analyses (Ashkanasy, 2007; Baneyx, 2008; Keloharju, 2008; Lee, Kraus, & Couldwell, 2009; Mingers, 2009; Moussa & Touzani, 2010).

These three rationales suggest that a Google Scholar h-index may be a better measure of journal quality than Thomson ISI impact factors in social work. The flexible time frame, the computational method that emphasizes quality and quantity, and the superior source coverage may yield more valid depictions of journal quality. Hypotheses that reflect this perspective are delineated below.

Hypotheses

This study examines the utility of the h-index with social work journals by comparing h-index values obtained with Google Scholar with (a) an established measure of journal quality—5-year impact factors obtained from Thomson ISI and (b)

expert opinion—reputation rankings based on faculty perceptions of empirical quality. First, it is posited that h-index values will correlate highly with 5-year impact factors.

Because both measures purport to evaluate the same construct, journal quality, they should exhibit a relatively high correlation (Babbie, 2007). Measures that assess the same entity are typically understood to be highly correlated (Kline, 2000). If a low correlation exists, then it is questionable whether or not the measures are tapping the same construct.

Second, it is posited that faculty perceptions of empirical quality will correlate more highly with h-index values than with 5-year impact factors. The h-index appears to be a more accurate measure of journal quality than the impact factor and Google Scholar covers more of the social science literature than Thomson ISI. As are result of these two improvements, the Google Scholar h-index should be correlated somewhat more strongly with faculty perceptions of empirical quality, relative to Thomson ISI impact factors.

These two hypotheses are tested with (a) all the journals that comprise the JCR social work category and (b) a subset of disciplinary-specific, American-based journals with which U.S.-based faculty may be more familiar. The methods used to test these hypotheses are described below.

Method

Data Sources

Five-year impact factors were obtained for all 29 journals listed in the social work category from Thomson ISI 2008 JCR (2008), which was the most current year at the time of the study. Thus, the impact factors were based on cites to articles in the previous 5 years or the 2003–2007 time frame. As noted above, the 5-year citation window is likely a more valid time period for social work journals.

Faculty ratings of empirical quality were drawn from the works of Sellers et al. (2004, 2006). Although faculty were surveyed in 2000, perceptions of journal quality are relatively stable across decades. Sellers and associates reported a Spearman correlation of.77 between perceptions of quality in 2000 and perceptions of quality obtained 10 years earlier in a similar study by Cnaan et al. (1994).

H-index values were computed using Harzing's (2010) Publish or Perish, version 2.8, available at (http://www.harzing.com/pop.htm). This free software program retrieves and analyzes academic citations using Google Scholar as the data source. This program has been used to conduct citation analysis in a number of disciplines (Ashkanasy, 2007; Franceschet, 2010; Keloharju, 2008; Lee et al., 2009; Mingers, 2009; Moussa & Touzani, 2010; Vanclay, 2008). It is designed to compute h-index values for academic journals.

Procedures

To compute the h-value for each of the 29 journals in the JCR social work category, searches were conducted following the procedures outlined in the Publish or Perish software manual. In keeping with previous research comparing the h-index with impact factors, the parameters were set to cover the years 2003–2007 to correspond to the 5-year impact time period (Bador & Lafouge, 2010). Where relevant, searches were conducted using spelling/grammatical variations (e.g., "and" and "&"). In addition, searches were conducted using each journal's International Standard Serial Number (ISSN). The query results were compared and assessed for incomplete or inaccurate results.

The initial searches were conducted in the winter of 2009–2010. A subsequent search was conducted in early spring 2010 to ensure the reliability of the h-index values. The results of the two searchers were almost perfectly correlated (ICC = .998, $p < .001$). The research was conducted with the approval of the institutional review board at the authors' university.

Data Analysis

Data analysis was conducted using Statistical Package for the Social Sciences (SPSS) version 17. Distributions were examined to ensure that the assumption of normality was supported for each variable. Although Spearman correlation coefficients are reported, analysis was conducted with both parametric and nonparametric statistical procedures. The same general pattern of results emerged in both cases.

Results

JCR Social Work Category

Table 1 lists the 29 social work journals and their associated 5-year impact factors, h-index values, and empirical quality ratings, with the exception of two journals that were not evaluated by Sellers et al. (2004). The Table is ranked in order of decreasing h-index values. Interestingly, of the three variables, only the 5-year impact factor had a somewhat skewed distribution (Skewness = 1.65, Kurtosis = 2.97). Analysis with the Kolmogorov-Smirnov procedure indicated that the assumption of normality was not supported for this variable, $D(29) = 0.20$, $p = .005$.

The first hypothesis was that h-index values would correlate highly with 5-year impact factors. This hypothesis was supported. Analysis indicated a very strong correlation between h-index values and impact factors ($r_s = .89$, $p < .001$; Cohen, 1988).

The second hypothesis was that faculty perceptions of empirical quality would correlate more highly with h-index values than with 5-year impact factors. Before testing this hypothesis, analysis was conducted to assess the validity of the 2000 year perceptions with the more recent impact factors. Sellers et al. (2004) reported a Spearman correlation coefficient of .45 between faculty empirical quality ratings and standard (2-year) impact factors. The correlation between the 2000 empirical quality ratings and 2008 (2-year) impact factors was a relatively comparable .51 ($p = .007$). The correlation increased to .61 ($p = .001$) for 2008 5-year impact factors. This result is consistent with the view that 5-year impact factors are

Table 1. Thomson ISI Social Work Journals ($N = 29$) Ranked by H-Index

Journal	5-Year Impact Factor	H-Index	Quality[a]
Child Abuse & Neglect	2.977	40	5.35
American Journal of Community Psychology	2.310	33	5.22
British Journal of Social Work	1.003	28	4.92
Family Relations	1.469	27	5.04
Trauma Violence & Abuse	3.982	25	n/a
Journal of Social Policy	1.253	25	5.33
Child Youth Services Review	1.114	25	5.18
Child Maltreatment	2.724	24	n/a
Health and Social Care in the Community	1.414	23	4.77
Social Work	1.108	23	4.90
Journal of Community Psychology	1.479	22	5.06
Research on Social Work Practice	1.096	21	5.35
Social Service Review	1.083	18	5.99
Health in Social Work	1.071	18	4.85
Social Work Research	1.204	16	5.52
Journal of Social Work Education	.853	16	4.69
International Journal of Social Welfare	.764	16	5.02
Families in Society	.450	16	5.07
Health Care in Social Work	.802	13	4.79
Child Welfare	.616	13	4.95
Administration in Social Work	.446	13	4.87
International Social Work	.409	12	4.75
Affilia	.421	10	4.61
Journal of Social Work Practice	.561	9	4.65
Journal of Social Service Research	.241	9	5.37
Clinical Social Work Journal	.504	8	4.51
Smith College Studies in Social Work	.190	6	4.56
Asia Pacific Journal of Social Work	.118	2	3.79
Indian Journal of Social Work	.036	2	4.19

[a] Faculty perceptions as reported by Sellers et al. (2004).

a more accurate measure of journal quality in social work than 2-year impact factors. Given these findings, the second hypothesis was tested.

As hypothesized, faculty empirical quality ratings correlated more strongly with h-index values ($r_s = .625$) compared to 5-year impact factors ($r_s = .606$). The degree of difference, however, was marginal, with less than a 2% difference in r_s values. This finding may be due to the inclusion, in the JCR social work category of many interdisciplinary, extradisciplinary, and internationally based journals.

American-Based, Disciplinary-Specific Journals

Additional analysis was conducted with a subset of journals that may be more familiar to social workers in the United States. To obtain the list of journals in Table 2, interdisciplinary, extradisciplinary, and international journals were eliminated from the data set. The remaining periodicals, again ranked by h-index, are disciplinary journals based in the United States. Given that Sellers et al. (2004) surveyed faculty in the United States, the respondents likely have more expertise in evaluating this subset of journals.

Table 2. American Disciplinary Social Work Journals Ranked by H-Index

Journal	H-Index	Prestige[a]
Social Work	23	4.73
Research on Social Work Practice	21	3.86
Social Service Review	18	5.12
Health and Social Work	18	3.29
Social Work Research	16	4.20
Journal of Social Work Education	16	4.19
Families in Society	16	3.99
Administration in Social Work	13	2.75
Social Work in Health Care	13	2.53
Affilia	10	3.19
Journal of Social Service Research	9	3.98
Clinical Social Work Journal	8	2.47
Smith College Studies in Social Work	6	2.46

[a] Faculty perceptions as reported by Sellers et al. (2004).

In keeping with the first hypothesis, analysis revealed a high correlation between h-index values and impact factors for these American disciplinary journals ($r_s = .83$, $p < .001$). Likewise, faculty quality ratings correlated more strongly with h-index values ($r_s = .56$) compared to 5-year impact factors ($r_s = .48$). Thus, both hypotheses were supported with this subset of journals.

Particularly interesting, however, were the correlations that emerged regarding faculty perceptions of journal prestige. Sellers et al. (2004) did not report any correlation coefficients between perceptions of journal prestige and 2000 impact factors, and no significant relationships emerged between perceptions of prestige and 2008 (2-year) impact factors, 5-year impact factors, or h-index values, using the complete listing of all JCR social work journals.

Significant relationships did emerge, however, when correlations were examined with the subset of high familiarity journals. Analysis revealed progressively stronger correlations between perceptions of prestige and (2-year) impact factors ($r_s = .59$, $p = .033$), 5-year impact factors ($r_s = .64$, $p = .018$), and h-index values ($r_s = .72$, $p = .005$). In short, when the data set if restricted to journals about which respondents may have more expertise, the results are consistent with theorized expectations regarding the validity of various measures of journal quality.

Discussion and Applications to Social Work

This study evaluated the utility of using the h-index to measure journal quality in the social work profession. It was hypothesized that (a) h-index values would correlate highly with 5-year impact factors and (b) faculty perceptions of journal quality would correlate more highly with h-index values than with 5-year impact factors. These two hypotheses were generally supported using the complete universe of JCR social work journals and a subset of disciplinary journals with which U.S.-based faculty may be more familiar.

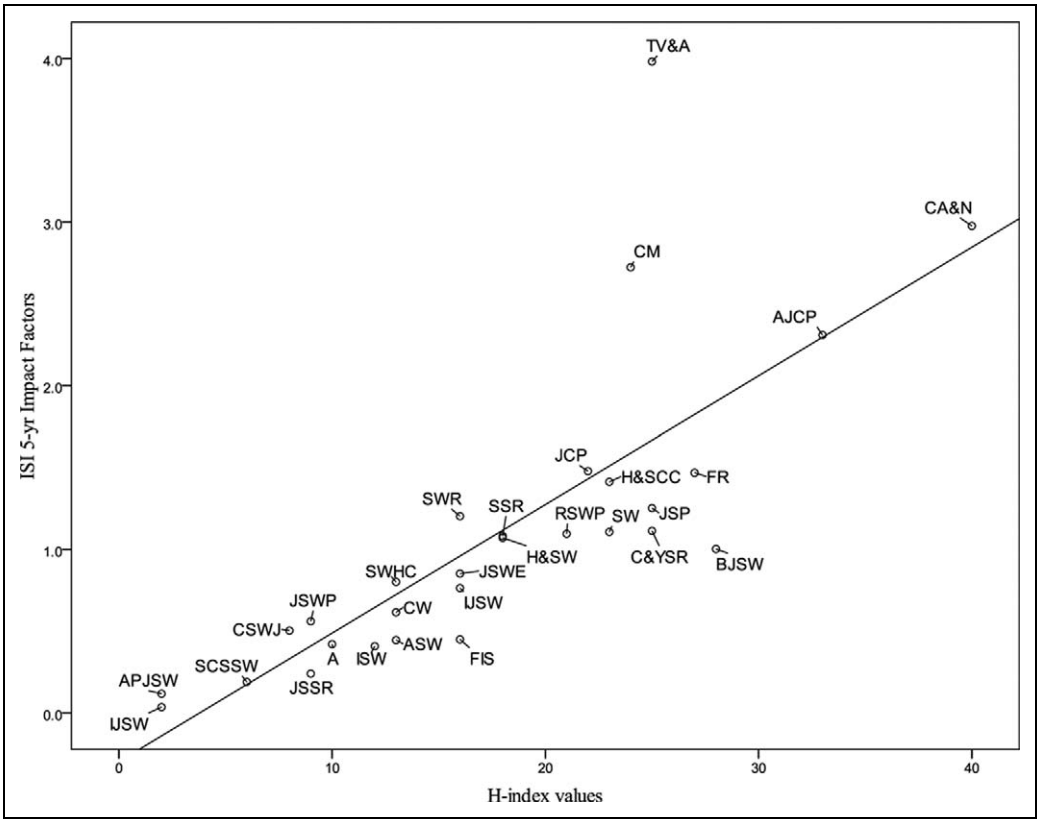

Figure 1. Correlation between ISI 5-year impact factors and h-index values.

Figure 1 depicts the results in the form of a scatterplot. The *y*-axis depicts the ISI 5-year impact factors and the *x*-axis depicts the 5-year h-index values. Journals are represented with common abbreviations. The straight line depicts the regression equation. Journals that appear above the line are ranked more favorably using ISI impact factors. Conversely, journals that appear below the line are ranked more highly using the h-index.

As can be seen, *Trauma Violence & Abuse*, and to a lesser degree, *Child Maltreatment*, are ranked more favorably using impact factors. Using the h-index favors the *British Journal of Social Work*, and to a smaller degree, *Child Youth Services Review*, and *Families in Society*. Most journals, however, are clustered around the regression line.

The findings are consistent with the results reported in other disciplines (Ashkanasy, 2007). Although other studies have typically used the standard (2-year) impact factor, or standard impact scores averaged over 5 years, correlations between impact factors and h-index values reported in other disciplines are comparable to the coefficients reported in this study (i.e., .89 and .83). In an analysis of seven different subfields within business and economics, correlations ranged from .63 to .89 (Harzing & van der Wal, 2009). Similar coefficients have been reported in ecology (.73; Olden, 2007), pharmacology (.59), psychiatry (.88; Bador & Lafouge, 2010), and forestry (.88; Vanclay, 2008).

Correspondence also exists regarding the second hypothesis. In forestry, the h-index was correlated more highly with expert assessment (.62) than with impact factors (.56; Vanclay, 2008). This same differential pattern also emerged in the current study, particularly with the subset of high familiarity journals.

This evidence of convergent and discriminatory validity suggests that the h-index may have some utility in assessing social work journals (Saad, 2006; Vanclay, 2008). It correlates highly with an established measure but exhibits closer agreement with expert opinion. In addition, it offers two key advantages that are particularly relevant to social work (a) a citation window that can be adjusted to correspond to the profession's research culture and (b) the ability to compute a value for essentially all disciplinary social work journals.

According to Thomson ISI, the aggregate cited half-life for journals in the social work category in 2008 is 8.3 years (JCR, 2008). In other words, roughly 50% of all articles cited by journals in the social work category were published prior to 2000 and 50% were published previous to 2000. In six cases, individual journals recorded a cited half-life of more than 10 years.

Although publication time frames influence cited half-life, other factors are also relevant, such as the degree to which knowledge maintains its currency. The shelf life of knowledge varies from profession to profession (Cameron, 2005). In an applied profession such as social work, it can take a considerable amount of time plan, operationalize, execute, and publish research. Because of the time involved, such research is often relevant far beyond the 2- and 5-year time frames used by Thomson ISI.

In professions with a long cited half-life, validity may be improved using the h-index (Vanclay, 2008). Although a 5-year window was used in this study to be comparable with Thomson ISI's 5-year impact factor, longer time periods may be advisable. In social work, it would seem that 8 to 10 years would be a minimally appropriate time period (Vanclay, 2008). This would be consistent with recommendations to increase the citation window of Thomson ISI impact factors to 10 years (Ha et al., 2006). Others might argue that an even longer time period would result in a more accurate picture, because an 8-year window would only capture approximately half of the relevant citations, given the profession's 8.3 aggregate cited half-life (JCR, 2008). In short, using a time period that matches the profession's culture will likely increase the validity of journal classification in social work.

Another pertinent advantage offered by the h-index is the ability to classify social work journals not indexed by Thomson ISI. Social workers publish in a wide array of disciplinary-specific journals (Thyer, 2005), of which only a fraction appear in the JCR (2008). Due to the current reliance on impact factors in assessing journal quality, scholars publishing in journals not indexed by Thomson ISI are often disadvantaged.

For example, publication in top tier, disciplinary-specific social work journals is typically a key factor in tenure and promotion decisions (Seipel, 2003). Inclusion in the JCR social work category is often perceived to signify top-tier status, in keeping with Thomson ISI's claim that they index the most preeminent journals (Green & Baskind, 2007; Green, Bellin, & Baskind, 2002; Jenson, 2005; Olden, 2007). Consequently, social work authors publishing in disciplinary journals that are not indexed by Thomson ISI may have a difficult time demonstrating the quality of the journals in which they publish.

The h-index provides an alternative way for scholars to document venue quality. Consider, for instance, the *Journal of Gerontological Social Work*, which is not presently indexed by Thomson ISI. A search using the parameters discussed in the method section revealed an h-index value of 12, which is similar to other widely respected journals in the JCR social work category (see Table 1). This finding is consistent with research conducted in other disciplines illustrating that non-indexed journals can have h-index values comparable to those that are indexed by Thomson ISI (Harzing & van der Wal, 2008a).

Since the majority of disciplinary social work journals are not indexed by Thomson ISI, the h-index offers the important advantage of inclusivity (Thyer, 2005). Essentially, all social work journals can be classified using the h-index and Google Scholar. This provides social workers with another tool to document journal quality. Yet, like other tools, the Google Scholar h-index is characterized by a number of limitations that are important to note.

All citation-based approaches are premised on the assumption that higher quality work will be cited more frequently, an assumption that may not be true in all situations. Thus, citations, like journal reputations, function as a proxy for journal quality. Metrics like the h-index or impact factor provide an approximation of journal quality, not a definitive picture. Although such metrics may be relatively reliable, they are not completely valid measures of quality.

Citations may be listed inaccurately (Spivey & Wilks, 2004), journal issues may be missing from databases (Holden et al., 2008), and Google Scholar accesses more nonacademic citations than Thomson ISI (Falagas et al., 2008). The h-index is, however, quite robust to measurement problems (Mingers, 2009), including the citation "noise" generated by Google Scholar (Mikki, 2010). In addition, Google Scholar accesses substantially more citations than Thomson ISI in the social sciences (Baneyx, 2008; Jacobs, 2009) and the majority of unique citations appear to be academic (Kousha & Thelwall, 2008).

Citation rates vary from discipline to discipline. Thus, h-index values (as well as impact factors) should not be used to compare journals across disciplines (Althouse et al., 2009; Seglen, 1997). If comparisons must be made, at a minimum, some type of correction must be applied to correct for differences in disciplinary norms (Barendse, 2007; Mingers, 2009).

Evidence suggests Google Scholar undercounts citations (Baneyx, 2008). Thus, while providing broader coverage than Thomson ISI in the social sciences, Google Scholar does not access the available universe of academic citations (Harzing & van der Wal, 2008a). This suggests that the actual h-index values of the social work journals are higher than the values reported in this study.

Finally, it should be noted that other methods exist for quantifying journal quality in addition to the h-index and impact factors. For instance, Bergstrom (2007) has developed the eigenfactor as a means to assess journal quality. In much the same way that Google ranks Web sites, this approach employs a form of network analysis to identify the most influential journals. The eigenfactor Web site includes a category for social work, which lists 25 journals (available at http://eigenfactor.org).

Conclusion

Many stakeholders in the profession have an interest in reliable, accurate measures of journal quality. In keeping with work in other disciplines, this study suggests that the h-index represents an important complement, and perhaps improvement, to the use of impact factors as a way to assess journal quality. It is unsurprising that Thomson ISI impact factors may have limited utility in professions such as social work, given they were developed to reflect disciplinary norms of fields such as biochemistry and molecular biology (Cameron, 2005; Leydesdorff, 2008).

The h-index may represent a more accurate measure of journal quality in disciplines such as social work. The h-index captures both quality and quantity in a single number that is intuitively easy to comprehend, its parameters can be set to correspond to the profession's research norms, and it can be easily computed for essentially all journals in which social workers publish. It may be time to implement it in the social work profession.

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