Original Article

Indian Journal of Medical & Health Sciences
Volume 3 Number 1, January - June 2016
DOI: https://dx.doi.org/10.21088/ijmhs.2347.9981.3116.7

Evidence for Analysis of Authorship in Journals: An Interpretative Quantitative Synthesis

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IJMHS (Jan-Jun 2016) 03 (01): 45-50 / ©Red Flower Publication Pvt. Ltd.

Abstract

Background:The characteristics of authorship involve a combination of number of authors, names and qualifications, institutional affiliations, order or sequence, and many other types of authorship misconduct namely the ghost authorship and gifted authorship. *Objective*: To descriptively summarize the studies on analysis of authorship and explore the existing evidence through articles indexed in PubMed. *Methods*: Systematic search of literature in PubMed was done using keywords "authorship"[Title] AND (trend[Title] OR trends[Title] OR analysis[Title] OR reporting[Title])" were used in the search tab, for obtaining all types of articles published in English, with available abstracts indexed until October 2012. Mutual consensus method was utilized after blinded independent search by two reviewers using a pre-decided checklist for data extraction and synthesis. Descriptive analytical approach was used to describe the data from the included studies. *Results*: Of the 32 included articles, there were four types of analyses-specialty based (N=21, 66%), journal-based (N=6, 19%), practice-based (N=2, 6%) and research-based (N=3, 9%). Of the 21 specialty-based articles, medicine (N=5, 23.8%) and dentistry (N=3, 14.3%) were more represented. 23 articles were on single characteristic, and 9 were on multiple characteristics, and the number of authors (11/23, 48%) and authorship criteria (5/23, 22%) were more commonly reported among the former type. *Conclusion*: Specialty-based analyses of authorship was more common, with more articles in the field of medicine and dentistry, and were more on analyzing a single characteristic such as number of authors or authorship criteria.

Keywords: Authorship Analysis; Authorship Trend; Authorship Characteristics; Evidence Analysis.

Introduction

Published articles in scientific journals have replaced textbooks as an authentic source of evidence since it is a well-recognized fact that they are current and up-to-date, compared to the latter which are written much before in time prior to their final print [1]. Writing for publication requires knowledge and skill on part of prospective authors, to develop the continuum of knowledge generation to knowledge translation [2].

Authors write original, review and other articles that are published or intended to be published in peer-reviewed biomedical journals, and this deems it necessary to follow certain guidelines which are usually detailed in the instructions to authors, in respective journals [3].

One such universally accepted and acclaimed example is the Uniform requirements for manuscripts submitted to biomedical journals, given by the International committee of medical journal editors (ICMJE) [4].

The professionalization of science and the ensuing paradigm shift of evidence-based medicine witnessed

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an avalanche of number of published articles contributing to research evidence in recent years [5]. The number of clinical trials (Total, N=687323) increased from 2211 studies in 1970 to 36,909 studies in 2011, which showed a whopping 18-fold increase in 4 decades of research and publications. A preliminary search conducted by the authors on 'evidence[Title]' for records in PubMed retrieved 154830 citations, growing from 653 records in 1970 to 1856 in 1980, 2957 in 1990, 4829 in 2000, 7089 in 2010, 7690 in 2011, and 7,800 until October 2012. This demonstrates the exponential growth in importance of the very term, 'evidence' which was found as ten-fold increase in number of articles, indexed in PubMed alone.

Not only does development of professional practice necessitate more research through ongoing scientific queries, but also ethical and more than many a time, financial [6]. In an era of 'publish or perish', authors are challenged to contribute more high quality articles in often high-impact journals [7]. The increasing number of biomedical journals and advancement of open-access publishing resulted in immediate dissemination of scientific content to the professional population [8].

The characteristics of authorship involve a combination of number of authors, names and qualifications, institutional affiliations, order or sequence, and many other types of authorship misconduct namely the ghost authorship and gifted authorship [9]. Analysis of authorship provides information on the above mentioned characteristics which would enable prospective authors to develop such qualities both in themselves and in their manuscripts, and the journal editors and publishers to evolve future policies.

The objective of this study was to analyze the studies on analysis of authorship and explore the existing evidence through articles indexed in PubMed.

Materials and Methods

Study Design

A systematic overview and quantitative analysis of published reviews.

Search Methods

The study methodology was a replication as per a previously reported study by Kumar et al [10]. Two reviewers performed an independent blinded search of PubMed using specific search strategy and they independently extracted and synthesized the data from the selected studies using a structured checklist. At all stages of the review process, all disagreements were solved by mutual consensus before proceeding to the subsequent stages of the review.

Search Strategy and Selection Criteria

A thorough literature search of PubMed using keywords "authorship"[Title] AND (trend[Title] OR trends[Title] OR analysis[Title] OR reporting[Title])" were used in the search tab, for obtaining all types of articles published in English, with available abstracts indexed until October 2012.

Data Extraction and Synthesis

The content of selected abstracts and full text articles was examined for their attributes of analysis of authorship, as per the structured checklist.

Results

Our search yielded an initial list of 36 citations, and we excluded 4 studies since they were not analyses (N=2) and were commentaries or editorials (N=2), and we selected a final list of 32 articles [11-42] included for our analysis. The 32 studies that were deemed eligible in the final scrutiny list were descriptively summarized as per themes identified in our scrutiny checklist as follows;

Types of Analysis

There were four distinct types- specialty-based analysis [11,13-5,17,19-21,24-7,29,30,32-6,39,40], journal-based analysis[16,31,37,38,41,42], practice-based analysis[12,22] and research / evidence-based analysis [18,23,28]. The comparison for number of articles based upon types of analysis is shown in Figure 1.

Among the 21 articles on specialty-based analysis, applied biomechanics [15], bioethics [34], biomedical engineering [20], conservation biology [35], dentistry [19,25,33], dermatology [29], gastroenterology [30], gynecology [39], implantology [21], medicine [17,24,27,32,40], orthopedics [13], palliative care [11], radiology [36], surgery [26], urology [14] were represented as professional scholarly disciplines. The comparison is shown in Figure 2.

Among the six articles on journal-based analysis, single journal [16,37,38,41] and multiple journal [31,42] analyses were found. The journals analyzed

singularly were *Journal of Danish Medical Association [16]*, *Journal of Experimental Analysis of Human Behavior [37]*, *Journal of Applied Behavioral Analysis [38]*, and *South African Medical Journal [41]*. Both the articles [31,42] on multiple journal analysis were multispecialty and multidisciplinary in context.

Among the two articles on practice-based analysis, one study was on alcohol abuse [12], and the other study was on stroke and myocardial infarction [22].

Among the three articles on research / evidence-based analysis, one study was on clinical trials' registration [18], and two studies were on authors' contribution [22,28].

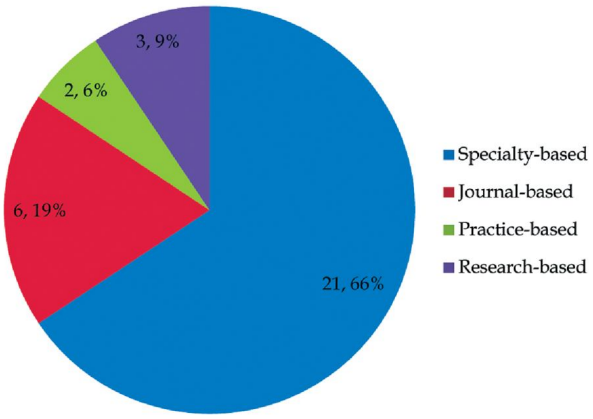

Fig. 1: Comparison for number of articles based upon types of analysis

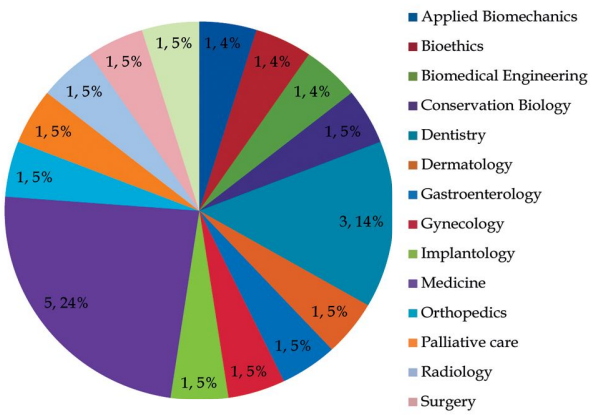

Fig. 2: Comparison for number of articles based upon sub-types of specialty-based analysis

Authorship Characteristics

Single [11,13,14,15,16,17,18,19,20,23,26,27,28,29,30,31,36,37,38,39,40,41,42]or multiple characteristics [12,21,22,24,25,32,33,34,35] were explored in the included studies (23 and 9 articles respectively). The single characteristics were criteria for authorship [17,19,23,28,36],gender gap [13,29], misconduct [18], nationality [30], number of authors [14,15,16,20,26,27, 31,39,40,41,42], practices [11],and professional experience [37,38]. Their comparison is shown in Figure 3. The multiple characteristics were either a combination of many single characteristics or relating authorship with other features of the journal and profession.

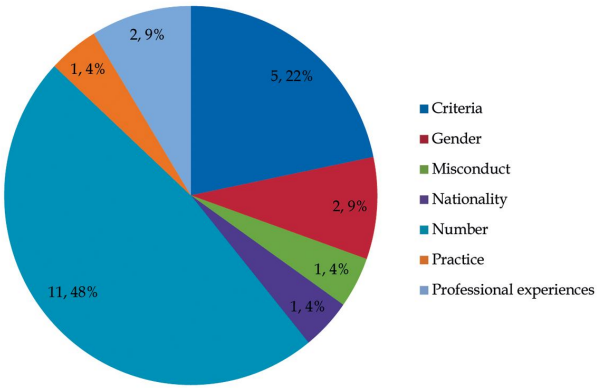

Fig. 3: Comparison for number of articles based upon sub-types of single characteristic of authorship

Discussion

This study aimed to explore the existing evidence through reviews and analyses of authorship issues from articles indexed in PubMed, and the study found that specialty-based analysis was more prevalent than journal-based analysis;

Marusic et al [43] performed a systematic review to explore the meaning, ethics and practices of authorship with respect to scholarly disciplines and they identified four 4 general themes common to all research disciplines: authorship perceptions, definitions and practices, defining order of authors on the byline, ethical and unethical authorship practices, and authorship issues related to student / non-research personnel-supervisor collaboration. They also found that misuse of authorship was geographically dependent, and also the provided publication credit.

Grieger [44] analyzed reports in the literature regarding misconduct in authorship: its types, chief causes, consequences and ethical guidelines; and outlined proposals for greater ethical commitment in scientific publications.The author also observed that an increasing number of publications have listed authors or co-authors whose participation in the published research was minimal or even nonexistent.

Newman and Jones [45] identified several professional, ethical and operational issues associated with the assignment of authorship per se, and the dissemination of the practice of collaborative authorship (co-authorship) in international scientific community has been accompanied by an increasing occurrence of frauds, manipulations and other deviations [46].

Some of the scientific issues of authorship malpractice include dilution of authorship responsibility, 'guest', 'pressured' and 'ghost' authorship, and obfuscation of authorship credit within by-lines. Other authorship irregularities include divided and duplicate publication [47].

Such authorship misintegrity may be influenced by industrial support and financial conflicts of interest [48]. Whether this issue is due to the individual perceptions and principles [49-50], or the journals' lack of properly defined policies is a controversy. Wager [51] in his review of 234 biomedical journals found that only 21 journals had mentioned authorship contribution as criteria for authorship in their instructions to authors.

Future evidence syntheses should aim at exploring journals' "instructions to authors," to establish the steps towards evidence-informed journal policy making and effective scientific publications and dissemination.

Conclusion

Specialty-based analyses of authorship was more common, with more articles in the field of medicine and dentistry, and were more on analyzing a single characteristic such as number of authors or authorship criteria.

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STATEMENT ABOUT OWNERSHIP AND OTHER PARTICULARS

"Indian Journal of Medical and Health Sciences" (See Rule 8)

1. Place of Publication	:	Delhi
2. Periodicity of Publication	:	Quarterly
3. Printer's Name	:	**Asharfi Lal**
Nationality	:	Indian
Address	:	3/258-259, Trilok Puri, Delhi-91
4. Publisher's Name	:	**Asharfi Lal**
Nationality	:	Indian
Address	:	3/258-259, Trilok Puri, Delhi-91
5. Editor's Name	:	**Asharfi Lal** (Editor-in-Chief)
Nationality	:	Indian
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