

CHARACTERISTICS OF ENGLISH-LANGUAGE TRADITIONAL AND OPEN ACCESS KINESIOLOGY AND SPORT JOURNALS

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Abstract

Objective: To document the English language Open Access (OA) journals in Kinesiology and Sports Science, their major editorial characteristics, and compare them to similar traditional, subscription-supported journals.

Methods: A search of the Directory of Open Access Journals and the internet found 51 English-language OA gold journals in Kinesiology meeting inclusion criteria. Four common editorial parameters were sought by email survey of journal editors/editorial offices and 51 matched subscription-support Kinesiology Journals.

Results: Twenty-three OA and twenty-eight traditional journals provided data. Traditional journals had significantly lower ($d = 1.3$) acceptance rates than OA journals. There were no significant differences in mean review times and numbers of databases indexing articles. Small percentages (4 to 35%) of journals had publication charges and could not be compared across journal category. There was considerable variation in the journals that responded so that there was overlap of the distributions of these common editorial characteristics.

Conclusions: These data indicate a majority of English-language OA and traditional journal publication opportunities in Kinesiology without publication charges, many with similar editorial characteristics. Traditional Kinesiology journals may have lower mean acceptance rates, however the size of this difference is not as large as the vast difference (100 fold) in journals based on many citation metrics.

Key words: acceptance rate, indexing, open access gold, peer review, publication

Introduction

Access to research in Kinesiology, Sport and Exercise Science, hereafter referred to as Kinesiology, has undergone a transformation in the last 20 years. Innovations in document storage and internet communication technology have made electronic searching and access to peer-reviewed journal articles the dominant mode of transmitting knowledge in the field. Over this same time frame there has been considerable growth in "Open Access" publishing [1-4] compared to traditional journals which are funded primarily through subscription, scholarly society sponsorship, and advertising. Open access (OA) journals are funded primarily through article processing charges (APCs) and may account for 20 to 30% of the published scientific literature [5-6].

Open access publishing has grown substantially in the last ten years resulting in new large OA publishers like BioMedCentral and the Public Library of Science. Major journal publishing companies have even acquired some of these new publishers and adapted their editorial models to include options for OA along with subscription publication. OA has been classified under two main routes, OA gold for a completely OA journal and OA green where the publisher, author, or an institution provides an archive/repository to host free access to the article [7]. Sometimes free access is delayed or a publisher provides authors with various OA publica-

tion options. Kinesiology scholars currently face greater complexity in selecting a journal for their research than several decades ago due to the proliferation of options and controversies related to OA publishing.

One controversial issue is the high cost of APCs, which can be higher than page charges used by some traditional journals. About half of OA journals have APC's [8] and these charges range from 0 to 3900 dollars with average costs between 900 and 1300 dollars [9-10]. This is certainly a disincentive for faculty without grant or institutional support for APC's or in the social sciences with a history of fewer page charges in subscription journals compared to the physical sciences [11]. Another controversial issue is scholar perception of lower quality of OA gold journals compared to traditional print journals [12]. While there have been warnings about the proliferation of "predatory" OA journals with minimal peer review [13-14], initial research indicates that many strong OA gold journals have similar citation and impact factors to subscription journals after controlling for time, discipline, and location [8, 15-16]. One randomized controlled trial of providing OA to randomly selected articles by a traditional publisher, reported significantly more views and downloads, but equal citations over the subsequent year than non-open articles [17].

In the field of Kinesiology there has limited published research on editorial parameters of print

journals [18-19] and OA journals [20]. Maddisettey reported that there were 57 OA gold journals indexed in the Directory of Open Access Journals (DOAJ: www.doaj.org) that were aligned with Physical Education and summarized their language, country of origin, subject areas, and years of publication [20]. There was a need to document the number English language OA gold journals in Kinesiology and their editorial characteristics of since the most prestigious scientific work is published and indexed in English. Maddisettey also reported that the largest percentage (44%) of OA gold journals in Physical Education was published in English [20]. The present study sought to document the English language OA gold journals in Kinesiology, their major editorial characteristics, and to compare them to traditional Kinesiology journals. Traditional Kinesiology journals were considered to be regularly published print journals supported by subscriptions and/or scholarly organizations.

Methods

The author searched the DOAJ and the internet for English language OA journals in Kinesiology. At the time of the search (May 16, 2014) the DOAJ indexed 9713 journals and searches of the key words "sport," "sports," "physical education," "kinesiology," and "exercise science" returned 59, 114, 59, 8 and 11 journals, respectively. The author also used the study by Maddisettey [20] and other subject key words (e.g. education, rehabilitation, health science) to ensure the identification of the largest number of English language OA Kinesiology journals. Over 130 OA Kinesiology-related journals were identified. Journals output by DOAJ not publishing articles primarily in areas related to Kinesiology were excluded (e.g., *Earth*

Science Research, *Physics Education Research*, *Open Journal of Internal Medicine*). OA journals included in the study must have had published all papers in English full-text for free online from 2012 to 2013 and listed a valid email address for the current editor or editorial office. Most excluded journals were for not publishing all papers in English (63%). There were also many (19%) that began publication in 2013 (e.g., *European Journal of Sport Studies*, *International Journal of Kinesiology and Sports Science*) and were excluded. Fifty-one English language OA Kinesiology journals from 20 countries met the inclusion criteria for the study.

A comparison group of traditional, subscription-supported English language Kinesiology journals ($n = 51$) was identified based on previous bibliometric research [21-25]. The author attempted to generally match up multi-disciplinary and sub-disciplinary journals and journals included in the study are listed in Table 1.

The study was approved by the Texas State University institutional review board for the protection of human subjects. Journal editors or journal offices were contacted by email and asked to answer four questions about publication information. Responses were encouraged by noting that only aggregate journal data would be reported. The four questions were: 1) How many indexes/databases pick up articles from your journal; 2) What are the current page/publication charges for an accepted paper in your journal; 3) What is the median review time for papers submitted for peer review to your journal (2012-2013) and 4) What is the acceptance rate for articles submitted for review to your journal (2012-2013)? Two follow-up emails were sent to non-responding journals three

Table 1. *Traditional and Open Access English Language Kinesiology Journals Surveyed*

Traditional ($n = 51$)	Open Access ($n = 51$)
<i>Adapted Physical Activity Quarterly</i>	<i>Acta Kinesiologica</i>
<i>American Journal of Sports Medicine</i>	<i>Advances in Physical Education</i>
<i>Chronicle of Kinesiology in Higher Education</i>	<i>Annals University of Galati: Physical Education and Sport Management</i>
<i>Clinical Kinesiology</i>	<i>Archives of Budo</i>
<i>European Journal of Sport Science</i>	<i>Archives of Exercise in Health and Disease</i>
<i>European Physical Education Review</i>	<i>Athletic Training Education Journal</i>
<i>Human Movement Science</i>	<i>Baltic Journal of Health and Physical Activity</i>
<i>International Journal of Aquatic Research and Education</i>	<i>Biology of Sport</i>
<i>International Journal of Athletic Therapy & Training</i>	<i>Biomedical Human Kinetics</i>
<i>International Journal of Golf Science</i>	<i>BMC Sports Science, Medicine and Rehabilitation</i>
<i>International Journal of Sport Nutrition & Exercise Metabolism</i>	<i>Choregia</i>
<i>International Journal of Sport Psychology</i>	<i>European Psychomotricity Journal</i>

Traditional (n = 51)	Open Access (n = 51)
<i>International Journal of Sports Medicine</i>	<i>Facta Universitatis: Physical Education and Sport</i>
<i>International Journal of Sports Physiology and Performance</i>	<i>Football Science</i>
<i>Isokinetics and Exercise Science</i>	<i>Gymnasium</i>
<i>Journal of Aging and Physical Activity</i>	<i>International Journal of Applied Exercise Physiology</i>
<i>Journal of Applied Biomechanics</i>	<i>International Journal of Behavioral Nutrition and Physical Activity</i>
<i>Journal of Athletic Training</i>	<i>International Journal of Exercise Science</i>
<i>Journal of Clinical Sport Psychology</i>	<i>International Journal of Sport Studies</i>
<i>Journal of Electromyography and Kinesiology</i>	<i>International Journal of Sports Science</i>
<i>Journal of Motor Behavior</i>	<i>International Journal of Sports Science and Engineering</i>
<i>Journal of Physical Activity & Health</i>	<i>Journal of Biology of Exercise</i>
<i>Journal of Science and Medicine in Sport</i>	<i>Journal of Exercise Physiology-online</i>
<i>Journal of Sport Behavior</i>	<i>Journal of Human Sport and Exercise</i>
<i>Journal of Sport & Exercise Psychology</i>	<i>Journal of the International Society of Sports Nutrition</i>
<i>Journal of Sport and Social Issues</i>	<i>Journal of Kinesiology & Wellness</i>
<i>Journal of Sport Management</i>	<i>Journal of Novel Physiotherapies</i>
<i>Journal of Sports Medicine and Physical Fitness</i>	<i>Journal of Physical Education and Sport</i>
<i>Journal of Sport Rehabilitation</i>	<i>Journal of Physiotherapy & Sports Medicine</i>
<i>Journal of Sports Sciences</i>	<i>Journal of Science in Cycling</i>
<i>Journal of Strength and Conditioning Research</i>	<i>Journal of Sport and Health Science</i>
<i>Journal of Teaching in Physical Education</i>	<i>Journal of Sports Science & Medicine</i>
<i>Kinesiology Review</i>	<i>Kinesiology: International Journal of Fundamental and Applied Kinesiology</i>
<i>Measurement in Physical Education & Exercise Science</i>	<i>Kinesiologia Slovenica</i>
<i>Medicine and Science in Sports and Exercise</i>	<i>Medicina Sportiva</i>
<i>Motor Control</i>	<i>Montenegrin Journal of Sports Science and Medicine</i>
<i>Pediatric Exercise Science</i>	<i>Open Access Journal of Sports Medicine</i>
<i>Perceptual and Motor Skills</i>	<i>Open Sports Medicine Journal</i>
<i>Physical Educator</i>	<i>Ovidius University Annals: Physical Education Science, Movement and Health</i>
<i>Physical and Health Education Journal</i>	<i>Polish Journal of Sport and Tourism</i>
<i>Physical Therapy in Sport</i>	<i>Physical Culture</i>
<i>Quest</i>	<i>Physical Culture and Sport</i>
<i>Research in Sports Medicine</i>	<i>Research in Physical Education, Sport and Health</i>
<i>Research Quarterly in Exercise and Sport</i>	<i>Scandinavian Sport Studies Forum</i>
<i>Scandinavian Journal of Medicine and Science in Sports</i>	<i>Serbian Journal of Sports Sciences</i>
<i>Sociology of Sport Journal</i>	<i>South African Journal of Sports Medicine</i>
<i>Sport History Review</i>	<i>SportLogia</i>
<i>Sport Management Education Journal</i>	<i>Sportscience</i>
<i>Sports Biomechanics</i>	<i>Sport Science</i>
<i>Sports Engineering</i>	<i>Sport Scientific and Practical Aspects</i>
<i>Sports Health</i>	<i>Sport si Societate: Revista de Educatie Fizica, Sport si Stiinte Conexa</i>

Note. Editors or editorial offices from the journals in **BOLD** responded to the survey and provided data and other journals did not respond or declined to report data.

and six weeks after the initial inquiry. The study data collection process terminated after nine weeks. To get APCs and page charges on a common metric, per page reported charges were expressed as a total cost assuming an eight page article. Several journals of both categories had different page charges related to sponsoring society membership and in these cases the mean of the different charges was used to calculate the typical page/publication charge.

Respondent data were compiled and descriptive statistics calculated for each question using SPSS 20. Given the unequal response rates the homogeneity of variance for the statistical tests was evaluated with Levene's statistic. The type I error rate for the study was set at $P < 0.05$ level and given the three t tests of dependent variables, critical alphas were adjusted using a Holms correction [26]. The magnitude of mean differences was documented using effect sizes using a pooled SD .

Results

Twenty-three (45%) of the OA and twenty-eight (55%) of the traditional Kinesiology journals responded to the survey. A minority of both kinds of journals (OA: 35% and Traditional 4%) assess page/article charges, with a single traditional journal with page charges so no comparisons were made for this variable. For journals with publication charges, the mean per-article charges for traditional and OA journals

were between 500 and 600 dollars (Table 2). There was considerable variability in the other three dependent variables showing overlap of the distributions between OA and traditional Kinesiology journals (Table 2).

Median review times were not significantly different between OA and traditional journals with typical review times of 30 to 50 days. There was also no significant difference in number of databases indexing OA and traditional journals. The typical number of databases indexing papers of respondent journals were between was between 7 and 18.

Levene's test for equality of variances was significant ($P < 0.022$) for acceptance rate, so the t -test was adjusted for unequal variances. Mean acceptance rates for articles were significantly ($t = 3.99$, $P < 0.001$) lower for traditional journals ($25.0 \pm 10.7\%$) than OA journals ($44.4 \pm 19.6\%$).

Discussion

This was the first study to identify English-language OA journals in Kinesiology, report their editorial and indexing characteristics and compare those characteristics with traditional Kinesiology journals. The results indicate that OA and traditional journals in Kinesiology have much in common, with similar review times, review times, and APCs for a small percentage of journals. Despite electronic submission and review systems for most all these Kinesiology journals,

Table 2. *Editorial and Indexing Characteristics of Open Access and Traditional Kinesiology Journals*

	Open Access	Traditional
Paper Charge for Journals with a APCs (US dollars per paper)		
M (SD)	592 (733)	500 (0)
Me	300	500
Max	2215	500
Min	31	500
Me Review Time (days)		
M (SD)	41 (30)	53 (23)
Me	32	46
Max	120	110
Min	1	20
Acceptance Rate (%)		
M (SD)	44.4 (19.6)*	25.0 (10.7)*
Me	43	24
Max	80	60
Min	10	9
Indexing		
M (SD)	12 (11)	18 (12)
Me	7	15
Max	35	47
Min	0	0

Note: * Statistical significance ($P < 0.001$) between kind of journal. APC: Article processing charges

authors submitted to most journals can expect a mean review time of about a month to a month and a half. This is in line with a recent call for improvements in timeliness and quality of peer review procedures in Kinesiology journals [27]. It is likely that many journals that target quick (two week) initial peer review are not meeting this goal.

A small percentage (4 to 35%) of the respondent journals required APCs and there was great variation in their cost (31 to 2,215 dollars for an 8-page paper). This low percentage of journals with APC was consistent with a recent study reporting an overall low percentage (28%) of 8493 OA journals with publication charges, although there were differences in charges across disciplines [28]. It appears that Kinesiology scholars have numerous OA and traditional journals in which to publish without publication charges/APCs, and there has not been a major transition to OA gold publishing in the field. While the low number of traditional Kinesiology journals with APCs prevented statistical comparison with OA journals, comparison of the values in Table 2 show qualitative similarity in APCs rather than obviously lower publication costs of OA than subscription-supported journals [29].

There was a large ($d = 1.3$) difference in article acceptance rate between OA and traditional Kinesiology journals that responded to the survey. This 78% larger mean acceptance rate in OA journals than traditional journals that responded to the survey, however, is smaller than the differences in common citation-based metrics in Kinesiology journals. Some bibliometric variables based on citations can have very large (up to two orders of magnitude) differences between Kinesiology journals [22,30]. The larger acceptance rate for OA journals in Kinesiology is also not consistent with perceptions of international scholars of all disciplines who are neutral (normally distributed on their agreement) in their perception that OA journals are of lower quality than subscription journals [5]. It is possible that the recognition and perception of quality of OA journals in Kinesiology may vary across sub-disciplines. One study has reported that the interest or research area of biomechanics scholars affected the perception of journal quality [31]. Journal influence is also a multi-factor phenomenon [32] with rigor, impact, and prestige as three major factors [33], and it is unclear which of these factors are most important to faculty perceptions of journal quality.

There was no significant difference in indexing between OA and traditional Kinesiology journals that responded to the survey. This agreed with a study reporting similar indexing of six other academic areas in eleven databases between OA and subscription-supported journals [34].

There were imitations of the current study that should be considered in interpreting the results. There

was potential for bias in defining and identifying OA gold, subscription-supported, and Kinesiology-related journals. What constitutes Kinesiology-related or the primary financial support of a journal is not easy to define or is universally agreed upon. Many traditional journals now offer OA green options, therefore identifying journals as OA gold may not be completely clear. The moderate response rates (45 to 55%) for both the OA and traditional journals means that the data may not be representative of these populations. It is possible that OA journal editors with greater similarity to traditional journals were more likely to respond than less rigorous OA journals. There is also subjectivity in the respondent/journal interpretation of each question that is common in survey research. Despite these limitations, the present data provide important information on OA and traditional journals for scholars and administrators in Kinesiology.

Conclusions

It was concluded there are not likely differences in typical review times, publication charges, and indexing between OA and traditional English-language journals in Kinesiology. There was considerable variation in the journals that responded so that there was overlap of the distributions of these common editorial characteristics. These data indicate a majority of English-language OA and traditional journal publication opportunities in Kinesiology without APCs. Traditional Kinesiology journals may have lower mean acceptance rates, however the size of this difference is not as large as the vast difference (100 fold) in journals based on many citation metrics.

Declaration of interest

The authors report no conflicts of interest.

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