



Research Article

Factors Related to the Frequency of Citation of the Physical Therapy Journal

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Abstract

We conducted a review of the highest impact physical therapy journal (*Physical Therapy*) to determine factors associated with subsequent citations within three years of publication. We conducted citation counts for all original articles published in *Physical Therapy* 2008 (12 issues). Study characteristics and citation rates were analyzed using median and interquartile ranges and logistic regression analysis was used to evaluate which factors predicted greater citation rates. The first citation time, study design, number of reference, number of pages and the month of publication were the variables associated with subsequent citation rate. We found significant correlations between the citation rates and the month of publication, study design, number of reference, number of pages and first citation time. In addition, we revealed that review articles were cited more frequently than clinical research articles. We consider that this information may help the readers, authors, reviewers, librarians and promotion committees to plan the studies and also to analyze and evaluate the articles.

Keywords: Citation analysis; Bibliometrics; Journal; Physical therapy; Publishing

Introduction

Physical therapy is a fast growing profession because of the aging population, medical advances, and the public's interest in health promotion [1]. Physical therapy has seen many exciting developments in the past 30 years; including progression to post baccalaureate education, development of post professional clinical training programs, and availability of specialty practice certifications. In the most recent decade, initiatives have focused on increasing professional autonomy, providing direct patient access, and applying evidence-based practice. These changes, among others, make it imperative that a body of knowledge specific to physical therapy be developed and maintained [2]. Physical therapists, whether functioning as clinicians, educators or researchers, require up-to-date information if they are to fulfill their professional obligations [3]. To obtain information relevant to practice, physical therapists rely on a number of different sources, including contacts with students and colleagues, demonstrations, ward

rounds, clinics, journals and other printed materials, discussions, in-service training, study groups, and formal instructional courses [4]. As professional scientists and physical therapists, our success is directly related to our ability to stay apprised of leading information and research in our field, and the most important source of this information is the scientific journals. The data necessary to influence evidence-based practice should be presented in this journal [5]. Therefore, peer-reviewed journals remain an extremely important source of information for physical therapists [3].

The article that has been referenced by another peer-reviewed article receives what is known as a citation [6]. Although publication is a crucial portion of the scientific process, an equally important part is the subsequent use and citation of these published articles by other researchers and authors [7]. One way to measure the academic importance of a journal, or the articles within it, is the rate at which the work is quoted or referenced by other authors [8]. Citation analysis within specific journals and specific subject areas has become a popular method of assessing the citation impact of a journal, article, or author [6-9]. Citation and other academic impact information have been collected by and available from the Institute for Scientific Information (ISI; Philadelphia, PA, USA) since 1945 and electronically since 1979 [6-9]. In 1955, the impact factor (IF) was proposed by Eugene Garfield as a simple method to calculate the relative frequencies of citations between journals. Subsequently, the IF was used to select journals for the Science Citation Index (SCI), a commercial property of the ISI and founded by Garfield in 1961 [9].

Citation analyses were performed to assist librarians, authors, practitioners, and others in identifying important journals for acquisition, publication, and reference. Citation analysis is also widely used for impact assessment of individual scientists, clinicians, institutions, and entire nations for determination of awards, rankings, and even promotion and tenure decisions [7,10-13]. Moreover, scientific journals attract well cited authors and desire potentially well cited manuscripts as the more cited the articles they publish, the higher is the IF of the journal [14]. Thus, although imperfect, citation analysis has become common in recent years and is considered to be the currency of journal prestige [8,11].

The prestige and standing of a scientific journal within its discipline can be judged in a number of ways. First and foremost however, an effective peer-review of all submitted manuscripts is paramount to guarantee the quality and validity of the work eventually published [15]. Second, bibliometric methods (such as journal citation rates, impact factors, circulation, manuscript acceptance rate, and indexing on MEDLINE or Brandon/Hill Library list) may be useful in evaluating the quality of a journal [16].

The *Physical Therapy Journal (PTJ)*, the official journal of the American Physical Therapy Association (APTA) and has been published since 1921 [1], is one of the most widely circulated and is currently the most frequently cited clinical physical therapy journal, [1-4,17,18] with a reported impact factor of 2.645 and 30% acceptance rates [17]. Peer-reviewed *PTJ* is the top physical therapy core journal, [2,3,18] listed in the rehabilitation category in SCI journal lists [4,5,19] and Brandon/Hill Library List. Furthermore, *PTJ* is among the oldest [2], strongest [18], and largest journals devoted to physical therapy, and it includes all professional specialty areas within its publication content [2]. Coronado et al., suggest that the *PTJ* was a reasonable reflection for the field of Physical Therapy research in their recent

bibliometric analysis [2]. Because of these features, only *PTJ* was included in this study.

Studies investigated citation analysis and factors affecting citation rates have been conducted in various fields of medicine [6-11,15,16,18-34]. Each study found a diverse correlation between study characteristics and increased citation rates [6-11,15,16,18-34]. These include an association between increased rates of citation and study design, study topic, sample size, level of evidence, the month of publication, geographical location of the study, the presence of funding, the number of authors and institutions, number of pages and references, first citation time, language of first author, the length of the title, newsworthiness score, journal prestige, number of prior publications in frequently cited journals by the corresponding author, online (open access) availability, the sex of the first author, alphabetical positioning of the first author's surname. Identifying factors that are associated with increased citation rates may assist authors in improving the impact of their work [20]. Also it can be used to direct articles to clinicians and researchers; select important material for systematic reviews, clinical practice guidelines, and health technology assessment projects; and choose educational material [22]. There is also citation studies related to physical therapy field in the literature [1-4,12,18,35] However, factors affecting the citation rates have not been investigated.

The number of times an article is cited in subsequent publications is an attractive measure of importance, or at least notice, by peers and others as it is readily available, but it has no applicability until citation counts are accrued in the years after publication, peaking at around three years [21,35]

We therefore undertook a study to determine what factors were associated with an increased rate of citation in a 3- year period after publication (2008-2011) using a cohort of articles published in 2008 in *PTJ*.

Method

We included all original scientific articles published in the *PTJ* in 2008. All research or review articles were considered for the analysis, while studies of cadavers, editorials, letters to the editor, commentary, report of expert committee, and congresses proceedings were excluded. From each eligible article, we evaluated the articles using a standardized evaluation form that included variables that have been previously reported to predict rates of citations in similar studies [7,8,10,12,16,20-22,25-33,36-38] These were:

1) the month of publication (January to June, July to December); [9,10,25] 2) study design [original studies (randomized controlled trial, prospective study, retrospective study, case report/case series), review studies (meta-analysis, systematic review, narrative review, perspectives)];[7,8,10,20-22,28,30] 3) clinical category of the article, defined as the medical subspecialty to which the main conclusion of the article was most applicable: cardiovascular, general medicine, musculoskeletal, neurology;[12] 4) Level of evidence (level I: randomized controlled trial, Level II: prospective study, retrospective study, Level III: case report/case series);[5,39] 5) geographical location of the study in which the research was performed (defined as the country or countries in which research participants were recruited or, for research which did not use research participants, e.g., systematic review, the country of the corresponding author); [12,20,22,25,27,28,30] 6) sample size of the study (1-25, 26-100, >100); [16,26,29,30] 7) Funding source (yes, no);[10,16,28,30] 8) Number of

authors (1-3, 4-6, >6);[22,30] 9) Number of institutions (1, >1); [21,22,30] 10) Number of pages (1-10, >10);[21,22,36,38] 11) First citation time (the number of months from date of publication to the first citation);[36] 12) Language of first author (from English speaking countries, from non- English speaking countries);[21,29] 13) Number of reference (1-48, >48);[21,22,31,37] and 14) the length of the title; title word counts (1-15, >15)[33,38].

We did not look at self citation, the sex of the first author, number of prior publications in frequently cited journals by the corresponding author, as these data are difficult to ascertain. We also did not use alphabetical positioning of the first author's surname, number of online hits or downloads of articles as they have not been consistently shown to affect citation rates or are difficult to ascertain. We also did not look at the newsworthiness score as they are difficult to ascertain.

Citation counts

Using the first author's name, both of us queried the ISI Web of Science database (<http://isiknowledge.com>) to ascertain, as of December 31, 2011, the number of subsequent citations for each article after publication. If entering the first author's name failed to yield any citations for an article, we searched for the second and last author to limit misclassification of an article as having zero subsequent citations. We chose a 3-year period after publication (2008–2011) to assess citations, on the basis of previous reports (see Bhandari M et al.) [20].

Two independent reviewers performed the data extraction (citation counts) and compared their results.

Data analysis

We analysed categorical variables using proportions and continuous variables using the median and interquartile range (IQR). We further performed independent samples t test, kruskal-wallis test, chi-square test and binary logistic regression analysis to assess for associations between predictor and outcome variable. We included variables in the logistic regression analysis if their level of significance was $p < 0.05$. p -values less than 0.05 were accepted as significant.

Results

We identified 117 original articles in *PTJ* published in 2008. Characteristics of studies are presented in Table 1. The most studies originated from North America ($n= 80$; 68.4 %) and the majority of papers came from English-speaking countries ($n=89$; 76.1 %). The median number of authors was 4 (IQR 3-5) and the median sample size was 35 (IQR 12-99.5).

Characteristics	N (%)
The month of publication	
January to June	60 (51.3)
July to December	57 (48.7)
Study design	
Original Study	101 (86.3)
Review Study	16 (13.7)
Original study	

Randomized controlled trial	18 (15.4)
Prospective study	43 (36.8)
Retrospective study	10 (8.5)
Case report/case series	30 (25.6)
Review Study	
Perspective	10 (8.5)
Systematic review	3 (2.6)
Narrative review	3 (2.6)
Meta-analyses	0
Clinical category of the article	
Musculoskeletal	40 (34.2)
Neurology	34 (29.1)
Cardiovascular	4 (3.4)
General medicine	39 (33.3)
Level of evidence	
Level I	18 (17.8)
Level II	53 (52.4)
Level III	30 (29.7)
Geographical location of the study	
North America	80 (68.4)
Europe	26 (22.2)
Asia	5 (4.3)
South America	3 (2.6)
Australia/New-Zealand	3 (2.6)
Sample size of the study	
1-25	39 (38.6)
26-100	37 (36.6)
>100	25 (24.8)
Funding source	
Yes	49 (41.8)
No	68 (58.2)
Number of authors	
1-3	46 (39.3)
4-6	57 (48.7)
>6	14 (12)
Number of institutions	
1	55 (47)
>1	62 (53)

Number of pages	
1-10	37 (31.6)
>10	80 (68.4)
First citation time	
First year	64 (54.7)
Second year	36 (30.8)
Third year	13 (11.1)
Not cited	4 (3.4)
Language of first author	
English speaking countries	89 (76.1)
Non- English speaking countries	28 (23.9)
Number of reference	
1-48	79 (67.5)
>48	38 (32.5)
The length of the title	
1-15 words	60 (51.3)
>15 words	57 (48.7)

Table 1: Sample Characteristics.

Subsequent citations

We identified 1195 citations of the 117 original articles. The first citation time after publication ranged from 1 to 35 months (mean 13.3). The number of citations after publication ranged from 0 to 56 (mean 10.2); of these, 4 articles (3.4%) had received no citations up to December 31, 2011. The median number of citations per published article was 7 (IQR 3-13.5).

Table 2 summarizes the citation rates analysis according to the study characteristics. In a univariate analysis, first citation time, study design, number of reference, number of pages and the month of publication were associated with overall citation rates. Specifically, review articles, articles received the first citation in the first year, articles which had more than 48 references, articles which had more than 10 pages and articles published between January and June were associated with higher citation rates. Other variables such as clinical category of the article, geographical location of study, sample size, funding source, number of authors, number of institutions, language of first author, level of evidence, and the length of the title did not meet statistical significance (Table 2).

Variables	Median citation (IQR)	P value
The month of publication		0.033
January to June	8.5 (3-14.5)	
July to December	6 (3-12)	
Study design		0.005
Original study	6 (3-11)	

Review study	18 (10.5-30.5)	
Original study		
Randomized controlled trial	9 (4-17)	0.078
Prospective study	6 (3-11)	
Retrospective study	4.5 (4-11)	
Case report/case series	4 (2-8)	
Review study		
Systematic review	48 (39-56)	0.330
Narrative review	19 (12-22)	
Perspective	15 (8.5-20.5)	
Clinical category of the article		0.617
Musculoskeletal	6 (3-13)	
Neurology	8.5 (3-15)	
Cardiovascular	2 (0-8)	
General medicine	8 (5-15.5)	
Level of evidence		0.243
Level I	9 (4-17)	
Level II	6 (3.5-11)	
Level III	4 (2-8)	
Geographical location of the study		0.829
North America	7 (3-14.5)	
Europe	7 (2-10)	
Asia	8 (4-17)	
South America	5 (2-22)	
Australia/New-Zealand	17 (6-24)	
Sample size of the study		0.068
1-25	4.5 (2-8)	
26-100	7 (4-12.5)	
>100	8 (3-12.5)	
Funding source		0.167
Yes	8 (4-15)	
No	6 (2-12)	
Number of authors		0.098
1-3	6 (2-9)	
4-6	9 (3.5-14.5)	
>6	10 (5-19)	
Number of institutions		0.598
1	6 (3-9.5)	

>1	8 (3-16)	
Number of pages		0.046
1-10	6 (3-11)	
>10	8 (4-16)	
First citation time		0.000
First year	10.5 (5.5-19.5)	
Second year	6 (4-8.5)	
Third year	3 (1-5)	
Language of first author		0.477
English speaking countries	8 (3-15)	
Non- English speaking countries	7 (4-15)	
Number of reference		0.003
1-48	6 (3-9)	
>48	12 (6-19)	
The length of the title		0.649
1-15 words	7 (3-12)	
>15 words	8 (3.5-15)	
IQR: Interquartile range		

Table 2: Median citation rates by study characteristics.

In logistic regression analyses articles cited in the third year had 23.7 times less citation possibility than the articles cited in the first year. Articles received the first citation in the second year had 3.3 times less citation possibility than the articles received the first citation in the first year. Original articles had 5.6 times less citation possibility compared to review articles. Articles with less references (1-48) had 3.3 times less citation possibility compared to article with higher reference numbers (>48). Articles published between July and December had 3.0 times less citation possibility compared to articles published between January and June. Articles with less page numbers (1-10) had 2.2 times less citation possibility compared to articles with higher page numbers (>10) (Table 3).

Variables	Odds ratio (95 % CI)	P value
First citation time (Third year)	23.7 (2.822-199.594)	0.004
First citation time (Second year)	3.3 (1.346-8.257)	0.009
Study design (Original study)	5.6 (1506-20.921)	0.01
Number of reference (1-48)	3.3 (1.478-7.614)	0.004
The month of publication (July to December)	3.0 (1.335-7176)	0.009
Number of pages (1-10)	2.2 (1.008-5.052)	0.048

Table 3: Results of binary logistic regression analysis.

Discussion

The prestige and standing of a scientific journal within its discipline can be judged in a number of ways. First and foremost however, an effective peer-review of all submitted manuscripts is paramount to guarantee the quality and validity of the work eventually published [15]. Second, bibliometric methods (such as journal citation rates, impact factors, circulation, manuscript acceptance rate, and indexing on MEDLINE or Brandon/Hill Library list) may be useful in evaluating the quality of a journal [16]. Therefore we investigated the parameters affecting the citation rate in peer-reviewed *PTJ* indexed in SCI and Brandon/Hill Library list which is the most cited journal in physical therapy field with the highest impact factor, the most circulation rate and 30 % acceptance rates. According to our results, the month of publication, study design, number of reference, number of pages and first citation time were significantly correlated with the citation rate.

Studies evaluating the influence of the quality of study on citation rates have reported conflicting results [7,8,10,12,16,20-22,26,27,29,30]. Some studies found that the articles of higher level of evidence with clearly documented research methods did receive more citations [16,20-22,26,29-30]. Other studies found that the level of evidence or quality of studies has been shown to be very poor or moderately related to citation counts [7,8,10,27]. Also Shadgan et al., when they analyzed top-cited articles in rehabilitation, reported that there was no correlation between number of citations and level of evidence [12]. In similar to Shadgan et al., we found that the level of evidence was not associated with a higher citation rate (Tables 2 and 3). Review articles (such as; Meta-analysis, systematic reviews) are all recognized as having a higher average rate of citation than original research papers [13,20,31]. Our results also supported the idea that systematic reviews and narrative reviews were the most cited articles (Tables 2 and 3). These types of articles often include more references than most other types of articles and often have higher citation counts in part because they represent summaries of knowledge that incorporate multiple individual works and perspectives [13]. In addition to this, review articles often have a greater impact on the reader than other types of articles. Because review articles can be a benefit to busy clinicians as evidence can be combined and summarized in one source. The citation impact of various study designs follows the order proposed by most current theoretical hierarchies of evidence. On average meta-analysis and systemic reviews currently receive more citations than any other type of study design. Although meta-analysis and systemic reviews are the most cited articles the number of systemic reviews published in *PTJ* are 2.6 % of total article number and no meta-analysis exists. Number of meta-analysis and systemic reviews need to be increased.

Textbooks of medical statistics require that the sample size should be large enough (or as large as possible) and that some justification for the size chosen should be given [26]. It has been claimed that researchers prefer to cite large studies rather than small studies [7,10,29,30]. Our data did not support this hypothesis: sample size was not associated with the frequency of citations (Table 2). Nieminen et al., came to the same conclusion when they analyzed a set of psychiatric articles [26]. Although larger sample size does not necessarily indicate better research, it may serve as a surrogate for sample size sufficiency (i.e., power of the study), which could be considered a quality measure [29]. Therefore, we consider that calculating power of the studies which are going to be published in *PTJ* will be beneficial. Studies evaluating the relation between the number

of authors and citation rates have reported conflicting results [10,21,22,28-30,32,37]. A number of studies found that multi-authorship increases above all the probability to be cited by others [10,21,22,28,32]. The other studies did not find a statistically significant correlation between the number of authors and the citation counts [29,30,37]. In our study, we did not find a significant relationship between citation rate and number of authors (Table 2). On the other hand, in theory, the more authors a paper has the higher number of citations of this paper that can be expected. Bornmann suggested four reasons for this association, first; each additional author increases the probability of self-citations, second; papers with many authors are most probably multidisciplinary papers, so that citations in various disciplines can be expected, third; the more authors a paper has, the larger the network in which the paper will become known through personal contacts, and fourth; not only informal but also formal communication in the scientific community can contribute to the greater visibility (and thus to a higher citation count) of a multi-authorship paper [37]. Lack of relationship between number of authors in *PTJ* and citation rates could be attributed to the editorial policy. *PTJ* requests declaration of author contributions to the article (Authorship form) before accepting the article for review. This might be a factor that limits higher author numbers. Articles with many authors are most probably multidisciplinary articles, so that citations in various disciplines can be expected [32]. Figg et al., [32] Lokker et al., [21] Willis et al., [30] and Okike et al., [29] reported that the number of times an article was cited correlated significantly with the number of institutions. In contrast, Loonen et al., [21] did not find any correlation between the citation counts and the number of institutions. Contrary to Figg et al., [32] Lokker et al., [19] Willis et al., [29] and Okike et al., [28] similar to Loonen et al., [23] we did not find a significant relationship between citation rate and number of institutions (Tables 2 and 3). Okike et al., [29] suggest that the authors who are open to collaboration with investigators from other institutions may be able to produce articles that have a higher impact on the field.

It is not possible to publish new material whatever its quality without demonstrating a minimal overlap with the status quo by including relevant references to reach this aim [37]. Therefore, references are essential component of published articles [19]. As Webster et al., [31] Bornmann et al., [37] and Lokker et al., [21] showed, there was a positive correlation between citation counts and the number of cited references: the more cited references a paper contains, the higher the citation count a paper will be expected to have. Webster et al., [31] concluded that one of the reasons for this connection was that "the tit-for-tat nature of 'I cite you, you cite me,' may be at work: the more people you cite in your paper, the more people are likely to cite your paper (the paper they were cited in) in the future. We found a significant relationship between reference number and citation rate in our study (Tables 2 and 3). Articles with more number of references were cited more than the articles with less number of references (p=0.003), (Table 2). That longer reference lists are assembled by authors who are more knowledgeable about their chosen topic, that they indicate topics that are "hot", and that they refer to larger number of scholars who may repay the favor by citing the article in question. It was indicated in studies investigating the relation between the number of pages and citation rate in the literature that articles with higher number of pages received more citations [36,38]. In contrast, Lokker et al., compared the citation counts of journal articles and the Cochrane reviews and Health Technology Assessment reports which are typically lengthy articles. They found

that there is a negative correlation between the citation counts and number of pages [21]. In our study we did find a relationship between the citation rate and number of page (Tables 2 and 3), that articles with higher number of pages received more citations than the articles with less number of pages (0.046). Article length (number of pages) was positively associated with citations. Long articles have more opportunity than short articles to develop arguments and present replicated and integrated findings or devote more attention to the broader implications of their results. Perneger reported that the readers judge the scientific value of an article from the title and the abstract, and if this assessment is favorable, they access the full paper and then use it for their study [38]. Jacques and Sebire investigated the effect of length of title on the citation rate in three medical journals (Lancet, BMJ and Journal of Clinical Pathology) [33]. They found that the number of citations was positively correlated with the length of the title, with the highest-scoring articles having more than twice as many words in the title than the lowest-cited articles. In our study we did not any relationship between the citation rate and the length of title (Tables 2 and 3).

The scientific quality of a publication can be determined not only based on the number of citations but also based on citation speed [36]. Whereas the citation count is a bibliometric standard indicator in the assessment of research, the amount of time up to the first citation is an indicator which has been scarcely used in bibliometric studies. The time at which an article receives its first citation (t1) is important for an article since at this time the article shifts its status from 'unused' to 'used' and the smaller t1 is, the more we can say – in general – that the article under study is important and early visible in the scientific world [36]. Bornmann et al., reported that there was a correlation between the first citation time and citation rate [36]. Our results also supported this idea. Articles received the first citation in the first year were cited more than the articles cited first in the second or the third year. Articles received the first citation during the second year were cited more than the articles received the first citation during the third year (Tables 2 and 3). Another important challenge in examining citations is the effect of time. Calendar time can affect the citation of an article in two important ways. First, the article published in the first month or issue of the year rather than the last month or issue-this gives it almost an extra year to come to the attention of authors and to be cited in a year that affects the citation counts or journal IF [9,25]. Second, there is a latency period between the decision to cite an article and the publication of the citing article. This latency period can be highly variable, depending on the number of times the article is submitted, different review times, and the duration of the 'in press' period [25]. We did find a significant relationship between the citation rate and the calendar time (Tables 2 and 3). Our results confirm that the article published in the first month or issue of the year rather than the last month or issue-this gives it almost an extra year to come to the attention of authors and to be cited in a year that affects the citation counts.

A relationship between citation rate and funding source was reported in the literature [10,28]. Kulkarni et al., indicated that articles with industrial funding received much more citations [10,28]. Willis et al., find that there is no association between the higher citation rate and funding source [30]. In contrast to Kulkarni et al., studies [10,28] and similar to Willis et al., [30] we did not find a significant relationship between citation rate and funding source (Tables 2 and 3). The reason of this result might be due to non-industrial funding sources that were used in physical therapy studies (such as; Government, University, Physical Therapy Association). In some

studies, it was indicated that articles which cited more originated from North America [11,12,14,24,25]. This can be explained by the large girth of the American scientific community, their higher research budgets [11,12] and the fact that American authors tend to cite American articles preferably and tend to publish their works in American journals. The latter might be related to a preference of American reviewers to accept American articles [12,14,24] Contrast this findings Willis et al., [30] reported there is no correlation between the citation rate and continent of origin. 68.4 % of the articles published in *PTJ* originated from North America whereas 22.2 % from Europe, 2.6 % from South America, 4.3 % from Asia and 2.6 % from Austria-New Zealand. In our study, similar to findings of Willis et al., [30] we did not find any relationship between the citation rate and income to the corresponding authors' country (Tables 2 and 3). An article written by authors from countries where English is a national language attract significantly more citations than do articles written by authors from non-native English speaking countries [40]. Eloquence and English language fluency may also improve the chances of the research being ranked more highly by reviewers and editors [34]. In the *PTJ*, the majority of papers came from English-speaking countries, with Netherlands, Norway, Israel, Italy, Denmark, Germany, Finland, Belgium, Sweden, Swiss, Brasil, China and Japan being the only other representatives. In our study we did not find any relationship between the citation rate and language of corresponding author (Tables 2 and 3).

The number of times an article is cited in subsequent publications is an attractive measure of importance, or at least notice, by peers and others as it is readily available, but it has no applicability until citation counts accrued in the years after publication, peaking at around three years [21,35]. Therefore, we investigated the citation rate and the factors that might affect it in a three-year period.

Limitations

There are limitations to consider when interpreting the results of this bibliometric study. First, we did not assess self-citation, which has been associated with increased frequency of subsequent citation [8-10]. Second, we evaluated only level of evidence of study and quality assessment (such as the clear reporting of the research question, presence or absence of controlling, blinding, and appropriateness of data analysis) of articles was not performed. Thirdly, we performed this study by investigating the citation rates of the articles that published only in one year (2008) 3 years after publication. In the biomedical literature, most articles were cited for an average of 10 years with their peak citation frequency lasting 2 to 3 years [35]. Studies including more than one year and investigating citation numbers in the following 10 years are needed.

Conclusions

In our study in which we investigated the factors affecting the citation rates in *PTJ* we found significant correlations between the citation rates and the month of publication, study design, number of reference, number of pages and first citation time. In addition, we revealed that review articles were cited more frequently than the research articles. We consider that this information may help the readers of *PTJ*, authors, reviewers, librarians and promotion committees to plan the studies and also to analyze and evaluate the articles. Furthermore, *PTJ* editors may consider citation potential when deciding which manuscript to accept in order to maintain or increase the overall impact of their journal.

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