



Brief communication

Externalities and article citations: experience of a national public health journal (*Gaceta Sanitaria*)

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ABSTRACT

Purpose: The purpose of the study was to analyze the determinants of citations such as publication year, article type, article topic, article selected for a press release, number of articles previously published by the corresponding author, and publication language in a Spanish journal of public health.

Methods: Observational study including all articles published in *Gaceta Sanitaria* during 2007–2011. We retrieved the number of citations from the ISI Web of Knowledge database in June 2013 and also information on other variables such as number of articles published by the corresponding author in the previous 5 years (searched through PubMed), selection for a press release, publication language, article type and topic, and others.

Results: We included 542 articles. Of these, 62.5% were cited in the period considered. We observed an increased odds ratio of citations for articles selected for a press release and also with the number of articles published previously by the corresponding author. Articles published in English do not seem to increase their citations.

Conclusions: Certain externalities such as number of articles published by the corresponding author and being selected for a press release seem to influence the number of citations in national journals.

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Introduction

Editorial boards of peer-reviewed journals have in their agendas different ways to raise or maintain the bibliometric impact factor (BIF) of the publications they serve, and many authors are guided by BIF when deciding the journal to submit their work. The BIF does not measure the quality of a specific article, but provides a figure that is being used to compare (and rank) journals. BIF has also received hard critics [1]. The number of citations that an article receives should be related to its quality and importance of results,

but there are other factors that we can call externalities, that might also influence this number, and that Editors sometimes use. Among them we can find press releases or author's experience measured as the number of articles published previously. The probability of citation has been recognized by some editors to be used as a basis for rejecting an article [2].

Sometimes editors have used practices borderline with ethics to increase BIF such as, (1) increasing self-citations to their journal, (2) manipulating the number of citable items by reducing the number of citable items (if citations remains stable, it increases the BIF); and (3) increasing the number of citable items that have more probabilities of receiving citations, such as reviews [3].

Approximately 75% of published articles have never been cited [4]. There is evidence about some factors which predict a higher probability of being cited such as article type [5] or language [6]. Sometimes even articles with a highest probability of being cited

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are not always of interest for most of the readership of the journal—a situation difficult to be concealed.

The objective of the present article is to analyze the determinants of citations, especially those with less evidence defined as externalities such as number of articles previously published by the corresponding author, selection for a press release, and other factors in a Spanish journal of public health.

Materials and methods

To perform the present study, we formed a cohort with all the articles published in *Gaceta Sanitaria* in the period 2007–2011. *Gaceta Sanitaria* is the official journal of the *Spanish Society for Public Health and Health Policy* and started its publication in 1987. It is the non-English language journal with the highest BIF in the Journal Citation Reports (JCR; Thomson Reuters) classified in the category public, environmental & occupational health (2013 BIF: 1,250) [7,8]. The journal is published by Elsevier since 2007 and received its first BIF in 2009 (IF: 1,172) [9].

For each article, we registered the following information: citations received since publication (retrieved from the ISI Web of Knowledge database in June 2013); number of authors; number of articles published by the corresponding author until the publication of the included article in the last 5 years; corresponding author's institution (classified into university, health administration, research center, and health center and/or hospital, for authors with more than one affiliation we selected the first one); type of article (original, brief original, review, editorial, special article, debate, field note, methodological note [proposing new methods in public health], letter, and so forth); publication year; publication language (Spanish or English); topic (grouped in infectious diseases, chronic diseases, health economy and health managing, environmental protection and promotion, methodology, editorial policies and formation, social epidemiology, pharmacoepidemiology and pharmacoepidemiology, and other topics); competitive funding declared (yes or no); selected for a press release by the editorial committee (yes or no). A common data format database was designed, and the authors extracted the information for the year assigned.

Statistical analysis

We first performed an univariate analysis describing the distribution of the different variables. We performed two multivariate logistic regression models. The first one considered as the dependent variable if the article was cited or not. The second analysis only included cited articles, and we used as a cut point for the dependent variable the median value of citations to have the same number of articles for each category. The dependent variable was in this second analysis being cited three times or more versus one or two times. We could not include some variables in the analysis because of missing or difficult to obtain information (statistical significance, sample size, geographical scope of the study, study design, or time since online publication). Both regression models included the covariates as mentioned in the previous paragraph. The analysis was performed with SPSS, version 17.

Results

We included a total of 542 articles. Of these, 339 were cited in the period considered (62.5%). The average number of citations was 3.3, and the median number was 2, with an interquartile range of 1 to 4. **Table 1** shows the description of the included articles. Forty percent had five or more authors, and 61% of the corresponding authors had published five or more articles in the 5 years previous to the article publication. The most frequent publication types were original

Table 1

Characteristics of the articles published in *Gaceta Sanitaria* (2007–2011) and included in the analysis of citations ($n = 542$)

Variables	Articles, n (%)
Publication year	
2007	99 (18.3)
2008	112 (20.7)
2009	132 (24.4)
2010	85 (15.7)
2011	114 (21.0)
Number of authors	
≤ 4	323 (59.6)
5–6	199 (35.6)
≥ 7	19 (3.5)
Articles published by corresponding author in the last 5 y	
≤ 4	203 (38.4)
5–10	114 (21.6)
≥ 11	212 (40.1)
Institution of corresponding author	
University	164 (31.1)
Health administration	167 (31.6)
Research center	91 (17.2)
Health care facility	104 (19.7)
Others	2 (0.4)
Article type	
Original	232 (43.1)
Brief original	54 (10.0)
Review	19 (3.5)
Editorial	25 (4.6)
Editorial note	20 (3.7)
Special article	37 (6.9)
Methodological note	20 (3.7)
Field note	25 (4.6)
Letter	41 (7.6)
Comment	28 (5.2)
Other types	35 (10.8)
Language	
Spanish	496 (91.8)
English	43 (8.2)
Topic	
Infectious diseases	45 (8.4)
Chronic diseases	64 (12.0)
Health economy and health services	109 (20.4)
Environmental protection and promotion	78 (14.6)
Methodology	56 (10.5)
Social epidemiology	105 (19.6)
Pharmacoeconomics	30 (5.6)
Other topics	48 (9.0)
Competitive funding	
Yes	160 (31.4)
No	349 (68.6)
Selected for press release	
Yes	47 (8.7)
No	495 (91.3)

articles (43%). There were 19 review articles, accounting for 3.5% of all included articles. Forty-three articles were published in English (8.2%).

Table 2 shows the odds ratio (OR) that an article was cited according to different variables. Articles published in 2010 and 2009 had the highest OR of being cited (reference year 2011). The number of articles published by the corresponding author was statistically significant associated with a higher OR of being cited: each previously published article increased the OR of being cited by a 2% ($P = .03$). The institution of the corresponding author does not seem to increase the OR of citation. Regarding the topic, articles on pharmacoepidemiology (OR = 4.99; $P = .02$) and on methodology (OR = 3.56; $P = .02$) have a statistically significant higher OR of being cited. Articles on environmental protection and health promotion had a marginally significant increased OR of being cited. No association was observed for publication language or article type. Competitive funding or article type is not associated with the OR of citation, but being selected for a press release is significantly associated to the OR of citation (OR = 2.77; 95% confidence interval = 1.05–7.32; $P = .04$).

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