

# The Good, the Bad and the Ugly Journals in Immunology: A Hypothesis to Facilitate Decision Making at the Time of Publishing

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## ABSTRACT

The decision making at the time of manuscript submission typify an important challenge in all scientific fields including immunology. Some discussion about the importance of journals Impact Factors (IFs) has been occurring in the last years and some alternative metrics have been proposed, however, many grants and academic positions still consider IFs as a pivotal criterion. Here we propose an innovative way to analyze journals quality with the aim of generating a simplified and easy-to-interpret approach that can classify journals in three main groups. Our hypotheses were proposed after empirical analyses of the Web of Science InCites™ Journal Citation Reports (InCites JCR - 2017) considering simultaneously the data related to the IFs and number citable items (CIs) in a 5-year interval. In this process, we could suggest three groups of journals according to its progress in the evaluated parameters, these groups were named as “good” (stable IFs and CIs), “bad” (increasing IFs with stable CIs) and “ugly” (decreasing IFs with or without augmented CIs) journals. We apply this analytic tool in the journals of the Immunology categories and we could observe excellent results. We also compare the grouped journals with the IFs and CIs results published in the following year and observed the full maintenance of those journals in this short-interval. In conclusion, our hypotheses yield an easy-to-interpret tool that can collaborate on journals choice avoiding predatory journals and future unpleasant surprises about journals quality mainly based on IFs.

**Keywords:** Impact factor, Journals quality, InCites JCR, Predatory journals.

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## INTRODUCTION

The discussion about journals Impact Factors (IFs) annually published by Web of Science and its importance has occurred more than ten years.<sup>[1-3]</sup> Besides that, the increase of predatory publishing activities has raised questions about the importance of using reliable markers of journals quality.

Some groups of journals, after an intense discussion about the “Causes for the persistence of Impact Factor Mania”,<sup>[4]</sup> has decided to eliminate the IFs information from their journal website in 2016.<sup>[5]</sup> Nevertheless, many research funding agencies and research institutions still consider the IFs to take their decisions on grant resources and to hire professionals.

In this complex state of the art, especially younger scientists have difficulty to establish their choices at the time of submitting a manuscript for publication. Differing from those more experienced, young scientists are more susceptible to

be deceived by predatory publishing activities<sup>[6]</sup> and can find hindrances in the near future of their careers based on the IFs resulting from decisions taken years before, at the time they publish their results.<sup>[7-9]</sup> Therefore, it has not yet become possible to not consider the IFs of the journals at the time of manuscript submission, on this basis, it is very important to assess the stability of the IFs at least in a short interval of five years.

Aiming to guide the decision making at the time of manuscript submission, we generate a simplified analyzes tool that seems to be a predictor of journal quality performance in the following years collaborating with decisions accuracy.

The analyzed data was acquired from the Web of Science InCites™ Journal Citation Reports (InCites JCR – published in June and updated in September 2017). At first, we perform an empirical evaluation correlating all available parameters without selecting journals category and this general evaluation resulted in the following observations: i- the IFs stability is closely related to the stability in the number of CIs; ii- the loss of IFs is ordinarily related to the augmentation in the number of CIs; iii- the augment in the IFs is related to stable or little decreasing number of CIs.

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Based on these observations we empirically determined numerical intervals for the evaluated parameters (IFs and CIs) in order to create an analysis tool that simultaneously considers journal performance on those parameters. The criteria adopted were: i- those that have a variation of less than 25% in their IFs and the number of published CIs variation was less than 100%; ii - those that have an increase of more than 25% in their IFs and the number of published items CIs was less than 100%; iii - those that have a decrease of more than 25% in their IFs and/or the number of published CIs was augmented in more than 200%. We illustrate these criteria with the lower and upper limits, when applicable, to each group in Figure 1. To name these groups we made an analogy with the classic western movie of the 60s suggesting to consider as “good journals” those that has stability in their IFs and CIs (i.e. the good character has the characteristic of be stable and not disappoint others), as “bad journals” those that has constant increase of their IFs with stable CIs (i.e. the bad character has the characteristic of hindering access by other people) and as “ugly journals” those likely to have a reduction of their IFs with or without CIs increase (i.e. the ugly character has the characteristic of disappoints other people).

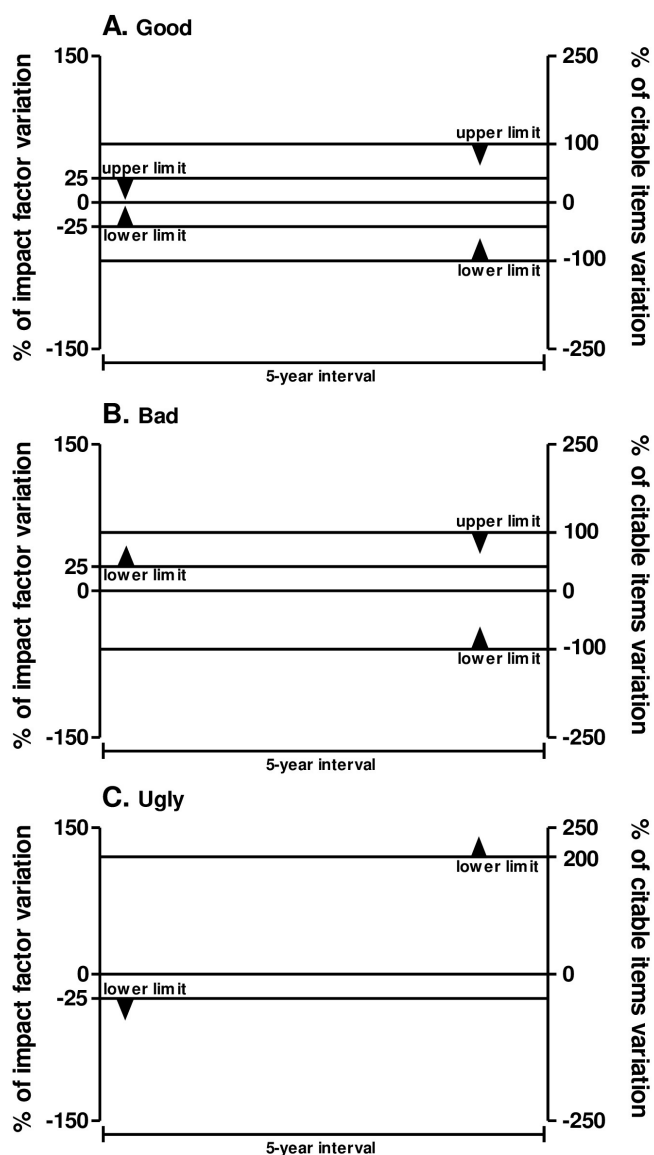
Having the tool determined in numeric parameters, we selected the category of Immunology journals to apply it. The search resulted in 151 journals and the exclusion criteria were the absence of IFs or the absence of citable items number in the last five years (2012–2016) resulting in 128 evaluable journals.

In the Figure 2A, we can observe some general information about our evaluation, after analysis, the “good journals” represent a majority with 75.1% of the evaluated journals, followed by the “bad journals” with 14.8% and the “ugly journals” with 10.1%.

In Figure 2B we can observe that grouped, immunology journals reveal the predicted profile on the IFs averages progression, with the stability in the “good journals”, an increase in the “bad journals” and a decrease in the “ugly journals”. After evaluating the average number of citable items on each group (Figure 2C) no noticeable difference could be observed in grouped journals.

Next, we illustrated individually the journals of each group (Figure 3A–C) and we could observe that all groups had journals with IFs ranging from less than 1 to more than 20. Furthermore, within the lower and upper limits of variation, some instability on the number of citable items can also be observed in all groups.

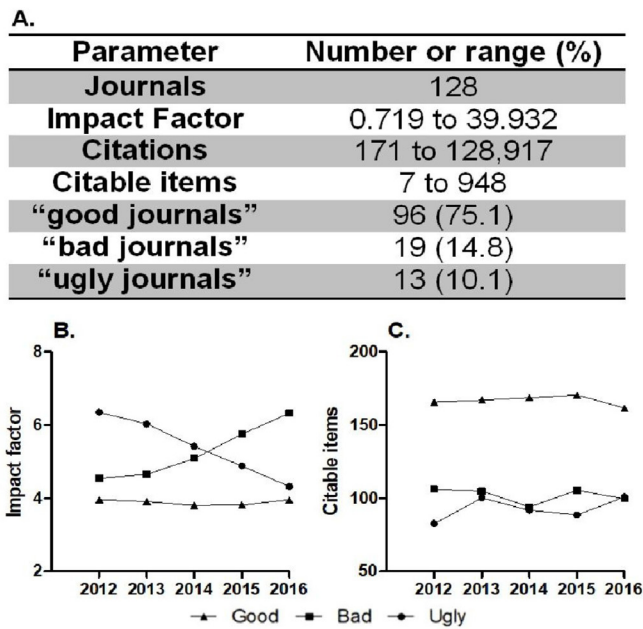
To validate the prediction properties of the proposed tool, at least in a short interval, we analyzed the data from the InCites JCR published in the following year (2018) to evaluate if the analyzed journals could be maintained in the same suggested



**Figure 1:** Graphical illustration with the limits on each of the parameters considered to determine the groups of journals. The upper and lower limits (when applicable) of impact factor (Left Y-axis) and citable items (Right Y-axis) variations in percentage (calculated from the first data in the evaluation period) are illustrated to each of the journal groups suggested in this study, the Good journals (A), the Bad journals (B) and the Ugly journals (C).

groups. In the one-year-interval, we could observe that 100% of the evaluated journals could be maintained in the proposed group reinforcing the analytical potential of our tool.

Recently, a similar approach was performed in rheumatology field where the authors classify journals in two main lists, named black and white, what results in the generation of a third group in the course of the manuscript, named grey zone.<sup>[10]</sup> This suggestion corroborates with ours indicating that a minimum of three groups is necessary to sort journals profiles, but the cited work did not develop original analyzes



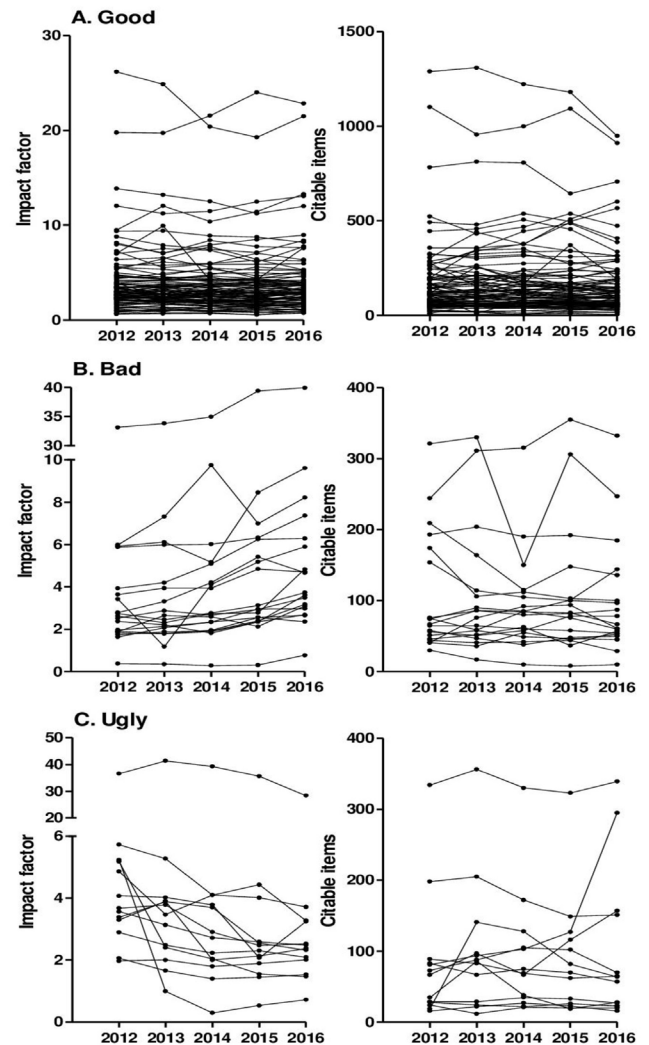
**Figure 2:** Main characteristics of the groups of journals.

The number of evaluated journals and the numbers or ranges of the main evaluated characteristics are detailed in the table (A). The mean of the impact factor and the number of citable items of each group in the evaluated interval is also illustrated (B-C).

based on metric parameters from a renowned database as we perform.

Our grouping method allows the identification of main journals profiles in a very useful way from the researcher's point of view. The “good journals”, since they had stability in their IFs, probably will not undergo major IFs changes in the next years, avoiding unpleasant surprises to the authors about the quality of the journals they choose to publish their studies. Besides, “bad journals” that had a constant increase of their IFs with a stable number of CIs, compose a very interesting group to submit a manuscript but, these IFs augment possibly are related to increasing scientific criteria for publication, making it more difficult to obtain an acceptance. And finally, the “ugly journals” that has been accumulating a reduction in their IFs and/or, that has been substantially increasing the number of published CIs, characteristics that possibly are related to a decrease in scientific criteria for publication, were likely to keep falling their IFs over the next few years, this may represent a problem for the authors in the near future.

Another interesting result of our analyses, is that immunology publishers listed by InCites JCR are not prone to adopt intense predatory publishing activities because “ugly journals”, a group on each most of the possible predatory journals could be classified, represent a minority. Therefore, considering the current scenario of scientific publications where since 2012 intense predatory publishing are been discussed<sup>[11,12]</sup> and



**Figure 3:** Individual impact factor and citable items numbers of evaluated journals.

The impact factor and of the number of citable items of journals are individually illustrated in the respective groups, the “good journals” (A), “bad journals” (B) and “ugly journals” (C).

where the pressure to publish has been favoring these activities,<sup>[13]</sup> our analytic hypothesis suggests excellent results about immunology journals tracked by Web of Sciences data bank since only a minority of the journals were classified as “ugly”.

In our analysis, an increasing number of CIs were important to disqualify only one immunology journal to “ugly” group without a decreasing IF. However, when we proposed the grouping used for this work, an increasing number of citable items directly correlates to a falling IF. Whereas that the calculation basis of future IFs include the number of citable items in the same period, the substantial increase in the number of citable items will certainly impact the calculation of IFs in the following years.

In addition, a frequent predatory activity of editorial policies has been the publication of large amounts of articles with the payment of high fees which has consequently lead those journals to the lost of editorial policies, an intense IFs fall and, in some cases, even the loss of the IFs.

Together our observations suggested a new and simplified way to predict journals IFs stability in the following years, an important analysis that must be done before submitting the results for publication.

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## CONFLICT OF INTEREST

The author reports no conflict of interest.

## ABBREVIATIONS

**IFs:** Impact Factors; **CI:** Citable Items; **JCR:** Journal Citation Reports.

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