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EDITORIAL

The "peer-review" process in biomedical journals: characteristics of "Elite" reviewers

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Abstract
The "*peer-review"* system is used to improve the quality of submitted scientific papers and provides invaluable help to the Editors in their decision-making process. The "*peer-review"* system remains the cornerstone of the scientific process and, therefore, its quality should be closely monitored. The profile of the "elite" reviewers has been described, but further studies are warranted to better identify their main characteristics. A major challenge, not only for Editors but also for medical scientific societies as a whole, is to continue to guarantee the excellence in the "*peer-review"* process and to ensure that it receives adequate academic recognition.

PALABRAS CLAVE
Revistas Biomédicas;
Cualidades de los revisores;
Revisión por pares

El proceso de "*peer-review*" en las Revistas Biomédicas: Cualidades de los Revisores de "Excelencia"

Resumen
El proceso de "*peer-review*" es trascendental para la mejora de los artículos científicos y representa una ayuda inestimable para los editores en la selección de los trabajos para su publicación. Su calidad debe supervisarse muy estrechamente, ya que en ella se basa la credibilidad del proceso científico. El perfil general de los mejores revisores ya está definido pero todavía son necesarios nuevos estudios para conocer mejor sus características. El reto todavía pendiente, para los editores y para las sociedades científicas médicas en general, sigue siendo conseguir la excelencia dentro del proceso de "*peer-review"* y lograr que este importante trabajo sea valorado y reconocido como un mérito académico.

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Biomedical journals have as their main objectives publishing scientific articles of high quality and achieving the widest possible dissemination of their contents.[1-5] These journals constitute the natural medium of communication for the latest medical advances by the international scientific community. In an increasingly competitive and globalised academic world, biomedical journals strive for the highest standards of quality, from both the editorial and from the scientific point of view. Given that these journals cannot possibly publish all the studies they receive, they must try to select and choose only those items that are most relevant from the scientific point of view in accordance with an editorial policy.[1-5] Consequently, the journals that achieve greater international recognition will, in turn, be more attractive for researchers, and will thus enter a "circle of prestige", always being in a position to choose the best original works.[1-5]

Scientific process is based on the system of peer review (PR), carried out by independent experts-external and outside the editorial team-who perform a critical review and assess the interest of the articles remitted.[4-7] This process helps to improve the scientific content of the article, makes it possible to detect issues that must be clarified, correct inconsistencies and errors, and also allows the interest of the manuscripts to be established with a view to the final decision by the editors.[4-7] Scientific findings cannot be considered as such until they are published in a medical journal. In this context, the PR system becomes essential, allowing the advance of scientific knowledge and ensuring the integrity and credibility of medical literature.[4-7] Although the PR system has a crucial influence in the selection process, the final decision on whether to publish scientific articles lies directly with the editor of the journal.[2,8]

In this issue of NEUROLOGIA, Matías-Guiu et al[9] analyse the characteristics of experts who have reviewed papers for this journal in relation to their responses. The editors of NEUROLOGIA show that responses by younger evaluators and women were higher. In addition, membership of the Editorial Committee of the publication is associated with a shorter delay in the replies. Finally, when, due to editorial reasons, there was a need to expand the number of evaluators, the response rate fell. Nevertheless, good evaluators did not show a "fatigue effect" when the number of requests that they received increased.[9] This study is very interesting from the editorial point of view and allows us to make some general reflections on the process of PR.

General considerations of the peer review process

To assess the scientific merit of an original research work, it should ideally be critically analysed by experts of recognised prestige in the subject in question.[4-7,10-14] These independent experts handle the latest information on the topic and can therefore easily identify original contributions to the research presented with respect to what is already known. In addition, they are in the best position to critically review the available information on international bibliometric databases and analyse it in relation to the new study. By working in this area of knowledge, they have first-hand information on the methodology used and the limitations of the techniques employed.[4-7,10-14] This privileged position allows them to evaluate the work critically and to suggest methodological explanations or even to conduct further analysis to improve and complement the study. However, reviewers should not become "censors" or "inquisitors" who limit the advancement of knowledge by rejecting all works inconsistent with prevailing "dogmas".[15]

What do we evaluate?

Most researchers (and most editors) tend to value uniqueness and novelty over prior knowledge as the most important factors when rating scientific work.[4-7,10-14] Originality has been considered essential in journals since Franz J. Ingelfinger[16] highlighted, 4 decades ago, the importance of scientific works that were original and had never been published previously, even partially. Consequently, any articles that simply confirm or qualify known assumptions or reproduce previous results in different settings have a lower priority. In addition, works that are clearly redundant must be identified to avoid their publication.[17] Methodological rigor is also very important, because if the study design is appropriate and the methodology is careful, results will be more consistent. The methodology should be described in a manner sufficiently explicit to allow other researchers to replicate experiments and be able to confirm the results. It is also important for conclusions to be based on data obtained and be clearly distinguished from interpretations of a speculative nature.[4-7,10-14] Editors should maintain current topic lists in which their reviewers are experts, to assign them appropriate manuscripts.

How is a review carried out?

An excellent way to start a review is to summarise the design and main findings of the study at the beginning of the evaluation report. The introduction (which often emphasises the importance of the research) and methods (which determine the quality of the study) should be scrupulously tested.[4-7,10-14] Where appropriate, relevant literature should be reviewed using reliable electronic search engines or even those provided by the journal. Evaluators are often considered as "judges" but they must also act as "advocates for the authors"-treating each manuscript as they would like their own to be treated-although their fundamental mission is to serve as "judges for the journal", acting as a filter.[12] It has been suggested that reviewing some lists of variables may help evaluators to conduct a more complete review.[12] Currently, most journals using electronic manuscript management systems require the reviewer to complete a series of quantitative and qualitative evaluations, apart from filling in the specific paragraphs for comments to authors (which should not make reference to the possibility of publication) and comments addressed directly to the editor.[18] These

electronic systems streamline the PR process, facilitate communication between authors, reviewers, and editors, and create a certain calling effect for the sending of manuscripts.[18]

What is the role of a reviewer?

The following evaluator responsibilities have been identified[4-7,10-14]: 1) notifying the journal immediately when they cannot perform an evaluation to avoid delays in the PR process; 2) admitting ethical issues or conflicts of interest; 3) ensuring the scientific validity of works by reviewing their methodology and results; 4) evaluating their originality; 5) highlighting their strengths and limitations; 6) suggesting ways to improve the manuscript; and 7) respecting the confidentiality of the whole process and the intellectual property of authors.[19] Other experts[20] describe, as the most important functions of reviewers, judging whether the manuscripts are 1) important, 2) scientifically valid, 3) consistent, 4) legible, and 5) appropriate for the specific journal. In turn, DeMaria[14] highlighted the qualities of reviewers of excellence. "Elite" reviewers should be highly trained in the subject matter that they evaluate and be expeditious. They should be highly objective and capable of generating analytical reviews that constructively identify the strengths and weaknesses of the study. They should also be able to detect all serious errors in design as well as methodological problems that invalidate the conclusions, and these reviewers should be consistent in their comments to authors and to editors. Lastly, they should not be vague in their assessments but base them on specific references and, if necessary, suggest the implementation of adequate statistical methods.[14]

Being a reviewer for a prestigious journal is both a privilege and a great responsability.[4-7,10-14] The process is based on trust and credibility. In fact, elaborating PR reports is very similar to the process of designing, developing and writing an original scientific article and, consequently, requires the same high standards of perfection and honesty. As in any writing process, quality may be variable because, to some extent, it depends on a certain degree of inspiration. Reviewers should always provide constructive criticisms and at all times maintain respectful language. They must bear in mind that, in many cases, their comments will carry an important educational message. Their criticism should be measured, taking into account the relative importance of the journal within the set of publications of the specific discipline.[4-7,10-14] They should always remember and respect the effort that the researchers had to make to complete their research and shape it into a final manuscript. Editors should ensure that evaluators do not convey a sense of superiority, with sarcastic or destructive comments, relying on anonymity. Evaluators should be familiar with the standards of the journal and, thus, be able to help authors to meet formal requirements. Finally, reviewers should not have any conflicts of interest (financial or otherwise) that may be perceived as a potential bias in their views. When in doubt, it is better to declare them openly to editors and let them make a final decision.[6,21]

Is it a perfect system?

The PR process was already used in 1731 by the Royal Society of Edinburgh[15] for the assessment of scientific manuscripts. However, its consistent application by journals took place much later.[7,15,22] The PR process is universally used and defended both by editors and by the international scientific community but, at the same time, it has always been questioned and criticised.[23] Any person with some experience in the PR process, either as author or reviewer, is usually able to tell stories that seem implausible about situations experienced firsthand. Richard Smith,[23] former editor of BMJ, summed up the limitations of the PR process thus: 1) it is poorly reproducible and it is very subjective (little agreement among reviewers), 2) it may be biased, 3) it does not preclude an element of luck (it may be a lottery), 4) its ability to detect significant errors in manuscripts is limited and it is not effective in detecting scientific fraud, 5) it represents a waste of academic activity by reviewers (which they could use -more productively- to conduct original research), 6) it may create opportunities for abuses to take place, and 7) although it may seem paradoxical, this process designed to evaluate science is not based on scientific evidence proving its efficacy.[23] In this regard, an interesting systematic review and meta-analysis[11] has confirmed that there is really very little scientific evidence, contrasted with appropriate studies, reporting on the value of the PR process. The group of Davidoff et al[11] reviewed all available literature and found only 19 studies that properly analysed (in a comparative manner and attempting to control for confounding factors) the value of the PR process. These studies[11] analysed the implications of masking, the use of lists of variables, communication strategies with the magazine, the existence of systematic bias by reviewers and the influence of the PR process in the "quality" of published studies. The results of these studies were, in general, either not conclusive or controversial.

We must therefore recognise that, in comparison with other areas of knowledge, the evidence supporting the benefits of PR is relatively limited.[11,23] However, as previously mentioned, all editors defend it and it is also highly appreciated by the international scientific community.[4-7,10-14] In a more recent survey[24,25] carried out among 3,040 academic researchers, 93% considered that the process of PR was necessary; moreover, the majority felt that it had significantly helped to improve their last published article. It is, undoubtedly, the least bad of the possible systems. However, there is no need for publishers to send out "all" the manuscripts received for peer review, as those of low quality may be identified internally and rejected directly by editors.[26] This prevents a waste of editorial resources on manuscripts that have no chance of acceptance and facilitates them being sent sooner to other, more appropriate journals. Johnston et al[26] conducted a randomized study on this subject, evaluating 351 manuscripts. Of these, 88 were assigned to conventional PR and 263 to initial assessment by the editors (182 were directly rejected by the editors and 81 were eventually sent out for conventional PR). The group assigned to systematic PR was associated with higher review work and a significant delay in the final decision. However, the assessment of scientific merit and impact of those

manuscripts finally accepted was similar with both editorial strategies.[26]

Can reviewers be educated?

According to Davidoff,[10] the PR process can only be mastered with practice, that is, through the trial and error method ("experimental learning"). It has been suggested that an "education" of the reviewers could improve their performance and the quality of their reviews. However, in a randomized controlled trial, Schroter et al[27] failed to demonstrate the value of an educational intervention strategy. In this study, the modest improvements obtained by the intervention group in some quality variables of the reviews were not considered to have editorial relevance. The study was criticised because the intervention was excessively brief, centred only on passive-type learning, and because the reviewers were already experienced individuals and, therefore, the learning effect might not have been too evident.[27] It remains to be seen whether other, more ambitious intervention programs could obtain more promising results.[10] It has also been commented that the PR process fails to detect any problems presented by the manuscripts. An interesting American study[28] used a fictitious manuscript in which the editors had deliberately introduced a series of important misstatements. Although the reviewers (n=262) identified many of the problems, up to 2/3 of them were not noticed. Specifically, 68% of the reviewers did not realise that the conclusions of the study were not based on the results presented. The reviewers who identified fewer errors tended to recommend the acceptance of the manuscript.[28] The need to include "professionalised" reviewers has been suggested to overcome such problems. Some journals systematically include reviewers who are experts in methodology, epidemiology, and biostatistics in the evaluation of original manuscripts received.[2] This decision can be justified by the importance of methodological issues, often not adequately assessed by clinical experts, and also for the teaching and support role offered to authors.[2] Other journals, however, only request statistical advice when the manuscripts are in the acceptance phase.

Concordance and "tough" reviewers

A widespread criticism is that the degree of agreement among reviewers is usually low, although publishers themselves are more aware of this than anyone. In some studies,[23,29] the level of agreement narrowly exceeds what would be expected simply by coincidence. Over time, publishers become well aware of who their best reviewers are with respect to the quality of their reviews and the consistency and reliability of their responses. It is understandable that, in case of discrepancies, editors agree more easily with strongly-based recommendations from rigorous reviewers who have comprehensively evaluated the manuscript, than with those based on superficial evaluations.[2,7] On the other hand, the quality and overall direction of recommendations made by a certain reviewer tend to remain relatively stable. There is a limited number of reviewers (<1%) who are always very easy to please ("enthusiasts"), while others are always very hard ("killers"), and this should be taken into account by editors, with a view to maintaining an adequate balance.[29] Despite disagreements on the reviews, all studies[2,7,29] confirm the high appreciation shown by editors for reviewer comments. Obviously, the editors of the more selective journals always pay more attention and give more credit to critical reviewers.[30]

A recommendation advising rejection will depend on the reviewer's tolerance limit and the number of errors identified in the manuscript. Some studies[31] have suggested that the most important features associated with recommendations for acceptance were: 1) scientific quality, 2) the importance of the study, and 3) the geographical origin of the manuscript. Interestingly, manuscripts from North America were more likely to succeed than those from other countries, even when adjusting for scientific quality and significance scores, and this was confirmed by independent studies.[31,32] It has been suggested that the rejection rate is not affected by reviewer age.[33] However, the reviewers who regularly publish articles in the leading journals in each specialty tend to be the most critical during PR process and frequently advise rejection of manuscripts in their evaluations.[33]

Anonymity and selection of reviewers

The "double blind" PR process is generally the most widely used in Spain.[2,7] With this method, the author does not know the reviewers nor do the reviewers know the identity of the authors. In the aforementioned survey carried out with 3,040 professionals from the academic world, 71% preferred the double blind PR system.[24,25] Many Anglo-Saxon journals, however, opt for a single-blind system in which the identity of the authors is known but the reviewers are kept anonymous. Several randomized studies[34-36] have examined the possible benefit of blinding the reviewers to the names of the authors. This masking did not improve the detection of errors or the quality of the reviews, or shorten the review time. This method is consequently not generally adopted because masking the identity of the authors is often very complicated as well as scarcely effective since, despite editorial efforts, reviewers usually end up identifying the authors.[34-36] Nevertheless, the reviewers remaining anonymous is generally preferred.[2,7] Very recently, the importance of maintaining the anonymity of the reviewers involved in PR has been defended and accepted in American legal proceedings interposed by powerful multinational pharmaceutical companies[37] that litigated to know their names. In 1999, Richard Smith[38] (then editor of the British Medical Journal) launched a new, "open" review system in which reviewers were asked to sign their comments. The journal Nature[39] developed a similar process. This method has the advantage of making this work recognised and, especially, of making reviewers publicly "responsible" for their criticism.[38] The system prevents some reviewers from making destructive, simple, superficial or low-quality comments from the safety of anonymity. One randomized

study[40] showed that open reviews lead to fewer reviewers accepting the invitation to conduct an evaluation (up to 25% of the reviewers may be lost) and that the reports take longer to be elaborated, although these are more polite and of better quality. The fundamental problem is that these criticisms are often much more favourable for the authors.[40] While it is important for reviewers to be made accountable for their reviews, this strategy may also promote an undesirable, "extra-editorial" dialogue between authors and reviewers, especially in reduced and closed scientific fields. The initiative is still in an experimental stage and pending the establishment of its definitive results.[38-40]

Another issue that generates some controversy is whether to accept the reviewers suggested by the authors themselves. Generally, publishers do not accept these suggestions, although they do usually respect the requests for specific reviewers to be excluded from the process. Some studies[41] have suggested that the reviewers chosen by the editors provide the highest quality reviews and are somewhat faster, but the differences found do not seem to have great practical relevance. In contrast, other studies[42,43] have suggested that review time and quality of reviews are very similar. In all the studies,[41-43] the reviewers suggested by editors tended to be far less favourable towards the acceptance of the manuscript than those selected by the authors.

Prior studies about the quality of reviewers

In an interesting prior study, Matias-Guiu et al[7] described the fundamental characteristics of the PR process. They highlighted impartiality, fairness, competence, and decision issues as key elements in the process of improving an article and making decisions. In considering the competence of the reviewers, it became clear that the best evaluators were younger, with a better *curriculum vitae*, belonging to prestigious research units, and were well known to editors.[7] It has been suggested that belonging to a prestigious academic institution may improve the quality of reviewers, as they will be immersed in a scientific environment and surrounded by the best intellectual and material resources (computer and statistical support, etc.). It has also been considered that academic institutions may offer "protected time" that could be used for the PR process.[20]

Interestingly, many studies[41] have shown that the quality of reviews-evaluated through validated "scores"-declined as the academic rank of the evaluator increased. Stossel et al[44] were the first to warn about the existence of an inverse correlation between reputation as an opinion leader and academic level and the quality of the evaluations received. Reviewers with these characteristics were also those who most frequently refused to perform evaluations. A study by Evans et al[45] examined the *curriculum vitae* of 201 internists. After eliminating the influence of many confounding variables, only age <40 years and working for academic institutions of excellence predicted a higher quality of evaluations. Gender, belonging to the Editorial Committee, being a prolific author, or having a high academic rank did not affect the quality of reviews. In this study,[45] a reviewer who was younger than 40 years, known to the editor, who belonged to a prestigious university, and was anonymous to the authors (4% of the reviewers) had an 87% probability of generating a high quality review. In contrast, if the reviewer possessed none of these characteristics, the probability was only of 7%.

A study by Black[46] evaluated the reviews of 420 manuscripts submitted to BMJ. Only age <40 years and formal training in epidemiology were associated with the quality of the reviews. Academic affiliation, experience in publishing or research and membership of the Editorial Committee were not associated with evaluation quality. In turn, in the work by Kliewer,[20] the evaluations by the editors of a radiology journal were also better in the case of younger reviewers and of those who worked at academic institutions. Once again, neither gender, years of experience as a reviewer, academic rank, or final evaluation of the manuscript were associated with the scores given to the quality of reviews.

Finally, Callahan et al[47] studied the relationship between the quality of the reviews and previous evaluator training or experience. In this study, 307 reviewers completed a structured questionnaire on different variables that attempted to analyze their prior experience. Subsequently, editors prospectively evaluated, over a period of 4 years, the reviews received (2,856 reports in total). Using a validated and standardised quality scale, the following were identified: 1) reviewers of excellence and 2) satisfactory reviewers; both groups were compared with the remaining reviewers. In a multivariate analysis, variables such as academic rank, formal training in critical reading, or statistical methods, or being the principal investigator in financed projects, were not related to the quality of the reviews. Surprisingly, belonging to the ethics committee of a hospital was associated with worse evaluations. The only independent predictors of quality of reviews were working at a university and evaluator youth. Being a member of other Editorial Committees (for reviewers of excellence) or having belonged to scholarship selection committees (for satisfactory reviewers) helped only partially to improve some of the quality variables. The authors concluded that there are no clear academic backgrounds that help to reliably identify the best reviewers. This highlights the importance for editors of supervising very closely the quality of reviews and, in general, the entire PR process of their journals.[47]

Current study

Matías-Guiu et al,[9] from the management team of NEUROLOGIA, analysed the profile of external experts who assessed works for this publication in the past 3.5 years in relation to the characteristics of their evaluations. To identify the profile of the best reviewers, they analysed age, gender, and membership or not of the journal Editorial Committee. The response rate to requests to review articles increased as the age of evaluators decreased and when the invited experts were women. Editorial Committee membership did not produce a better response rate, even though the evaluators of this group responded more rapidly.[9] This study provides an in-depth profile of the best evaluators of medical journals in our scientific, social and healthcare

environment. To our knowledge, there are no similar editorial works on this subject in our country. The issue is relevant because these study findings may serve to improve and streamline the PR process.

Time and rate of response

With good reason, any reviews for which the reviewers stated that they could not perform the requested evaluation in the given time were excluded from the analysis in this study.[9] It is clear that even the best reviewers can occasionally be overburdened with excessive clinical work or prior academic commitments. It is always best to advise the editors as soon as possible when the evaluation cannot be completed, to allow the editorial team sufficient time to find a replacement. Otherwise, undesirable delays take place, which damage authors' interests and journal prestige. This problem can be understood as something that rarely happens in terms of elite assessors who should always prioritise their commitment the journal.[2,14] It is not uncommon for the authors who complain most bitterly when their work is delayed during PR, to be the same ones from whom publishers have to repeatedly request to send their evaluations.[2] In reality, a time of 4 weeks is more than reasonable to accommodate prior commitments. In fact, most medical journals currently receive the requested evaluations within a period of 15 days.[2] Evaluation time impacts on the period for the first editorial decision (the most important) and on total publication time for manuscripts accepted. These are key aspects of editorial quality, with implications at both the scientific (for researchers) and the bibliometric (for the journal itself) levels.[3,8] One of the most interesting outcomes of the study variables is the average time to receive the evaluations, which was 31 days. As commented, this is a reasonable time, but at the same time, it points to an opportunity for improvement in publishing. This should be carefully considered within a strategy of "joint effort", which not only relates to the editors of the journal but to all the members of this society, as well as authors or readers, who will be the direct beneficiaries of the quality improvements obtained.

Age

It has been suggested that younger reviewers detect errors in the manuscripts better than more senior reviewers.[13] Apart from an interest in achieving professional recognition, they have often received training in design skills, methodology, and statistics more recently, and have a better knowledge of the basis for innovative diagnostic or therapeutic techniques commonly the subject or basis of scientific studies.[20] Younger reviewers also search for more data in the literature and are more open and receptive to accept new ideas; older ones more often rely on their experience and their views consequently remain more entrenched, which has been denominated "confirmation bias".[20] It has also been suggested that older reviewers and those with higher academic ranks are less impressed by new works and tend to give lower global scores to manuscripts.[31] It has already been pointed out that, in all the studies considered, young reviewers presented better review quality.[44-47]

Females

Sometimes women need to work harder to ascend the slippery ladder of academic advancement and to address the now cliché "glass ceiling".[48-51] Although women comprise more than half of medical students in developed countries, their presence in relevant academic positions is still very low and certainly lower than might be expected.[48-50] Some studies have suggested that women write fewer articles in scientific journals. They are also less frequently invited to write editorial comments in prestigious journals and are poorly represented on Editorial Committees.[48-51] Even in Spain, recent data confirms this problem.[48] It has been speculated that the inherent competitiveness of the academic world requires longer working hours that many women decide against. It has also been suggested that women are generally more oriented towards positions with a clinical component or towards teaching than towards research. This could explain, at least in part, their lower presence in the academic world.[48-51] The positive part of the information available is that this situation is changing and in the majority of studies, both in Spain and internationally, the number of female authors is increasing progressively.[48-51] Furthermore, with regard to PR quality, their behaviour is very similar to that of men and has even been better in some studies. A study by the JAMA editors[52] suggested that, compared with female reviewers, male reviewers gave extreme recommendations for acceptance or rejection more frequently. The survey data presented in this issue of NEUROLOGIA[9] indicate that women obtained excellent results in the PR process. It remains to be determined whether the younger age of women in this study (46 vs 52 years) conditioned the results of their responses or if such results could be traced directly to other issues related with gender. It would also have been interesting to know the percentage of female reviewers who belonged to Editorial Committees and whether this affected the results obtained. These data may help to clarify the complex relationship that seems to exist between these three factors and their potential influence on the response variables analysed. In any case, the work by Matías-Guiu et al[9] convincingly demonstrated that, in our country, women are evaluators as good as, if not better than, men. Consequently, not only should they become increasingly involved in the PR process, but their presence on the Editorial Committees of our journals should continue growing.[48]

Editorial committee members

In this study, the age of reviewers belonging to the Editorial Committee was higher than that of simple journal collaborators (54 vs 49 years). However, the average delay of Editorial Committee members was lower than that of non-member collaborators (26 vs 33 days).[9] This could point to the fact that members of the Editorial Committee of this journal are especially encouraged and clearly committed to their task. The lack of a "fatigue phenomenon" in the reviewers used most often also demonstrates that the journal editors are able to encourage their most trusted

members. As an example, the reviewer who received the highest number of requests was, surprisingly, also the one who took less time to complete them (14 requests for review, with an average delay of only 11 days).[9] Interestingly, a recent study[53] seems to suggest that members of a journal's Editorial Committee publish more in the same journal than members of other equivalent Editorial Committees. It is unclear whether this could be due to internal biases in the PR process or editorial decisions, or to the preferential referral of manuscripts to reviewers with whom they were more familiar.

Members of the Editorial Committee of a journal should express all the scientific dynamism of that society. The most scientifically active members should play a bigger role in the PR process. More senior members may at times take on an increasing number of academic responsibilities that make it difficult for them to maintain the quality standards required by the PR process. Although it could be considered that these members should be replaced at that time, this decision may not be easy, as many of them may have significant international prestige. It must be remembered that the indicators that reflect journal quality evaluate, among other considerations, the international prestige and scientific impact of its Editorial Committee members. Most likely, the ideal situation would be to strike a balance and maximise collaboration from the most prestigious members of a society while simultaneously renewing the committee with young, enthusiastic members, even if their international prestige has not yet become consolidated. In any case, the choice of the Editorial Committee is the editor's sole responsibility[2,6] and this decision should always take into account scientific aspects and the best interest of the journal first, before other, more political considerations.

Other aspects of the study

There are some potentially interesting aspects not analysed in this study but that could be taken into account in future studies. As noted, most biomedical journals "rate" their own reviewers, but the editors often keep these ratings private.[2] Regardless of response rate and delay, editors assess the reviews according to their quality, depth, and scientific rigor. This aspect of "quality of reviews" in relation to evaluator profile has not been analysed in this study, but it would be very interesting to know whether, also in our country, this variable is influenced by the evaluators' scientific profiles. Knowing if the best evaluators have a particularly active role as authors in prestigious national or international publications or if they are mainly related to the academic world could be of great interest. However, this process would have required a much more complex methodology than that used in the current study,[9] which has unquestionable internal validity because it is extremely straightforward (direct data obtained from the registry of the Spanish Society of Neurology members).

What can we do to stimulate our reviewers?

Paradoxically, despite the great importance of the PR process, this academic activity is largely unrecognised. Due to reviewer anonymity, only the editors know the real value of their work. Carrying out a good review report in a short time is a voluntary effort that can only generate further requests... and more work.[4-7,10-14] Therefore, without explicit recognition, over time it can be tempting to abandon the PR process and dedicate that time to other, more "profitable" academic activities instead.

Being invited to review an article for a prestigious journal is considered an honour. Many times this effort of "academic altruism" is performed just to feel like an active member of the scientific community. In this family we are all authors but, at the same time, we must all serve as reviewers. The reward for being an author is very clear. The most significant reward for reviewers is the knowledge that they have helped to improve the quality of the science being published. Over time, consolidated authors are usually invited to join an Editorial Committee. However, this "showcase" is very limited and not all quality reviewers can gain access to it.[2] One of the most unpleasant problems faced by journal editors with well-established Editorial Committees is seeing how some good young reviewers who cannot be incorporated (and recognised) despite several years of excellent performance, end up becoming disappointed and not accepting new review requests.[2]

What tangible incentives can be offered to encourage a system so vital to the health of the scientific process? There are other incentives apart from the recognition of participating as a collaborator (letters to the editor or publication of acknowledgements in special pages) or belonging to the Editorial Committee.[2] Many scientific societies award formal continuous medical education credits for PR activities.[2,14] The number of hours used to complete such reviews can be established and counted as an accredited activity. In fact, some publications have developed a "score" that weighs a combination-although with different importance-of quality, number of reviews, and time spent in carrying them out.[2] Each reviewer can reach an annual score that automatically grants the corresponding credits for continuous education. Evaluators can also be rewarded with free access to the journal's bibliometric search engines or with free subscriptions to the publication. Another well-established method to reward PR work is to invite the reviewer to write an accompanying editorial, to put the most notable aspects of the accepted original article into perspective.[2] This seems particularly successful, as such reviewers are, by definition, experts on the subject and know the article in depth so they can easily highlight its merits and limitations. In many countries, this work can also be rewarded with special recommendation letters from editors for academic promotions. Finally, some journals reward their best reviewers with specific awards (elite reviewer), which are officially presented at relevant scientific meetings.[2,14]

There is still much work to do. It is essential for medical and scientific societies to promote having PR activities adequately recognised as academic merit. This is true for both the standards for staff positions and for competitive promotions at university level. Achieving such academic recognition is the best way to acknowledge how important PR activities are, so that-together-we can contribute to maintaining the credibility of the scientific process.

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