ORIGINAL ARTICLE

What happens to medical articles submitted in Spanish that are not accepted for publication?☆

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KEYWORDS
Editorial process; External peer review; Medical journal; Rejected articles; Fate; Language

Abstract
Introduction: The fate of manuscripts submitted and subsequently rejected by Spanish-language journals is unknown. The present study was designed to determine whether or not articles submitted to NEUROLOGÍA are published following rejection, and if so, where.
Methods: We searched Medline in late April 2012 and also analysed all manuscripts rejected by NEUROLOGÍA between October 2004 and April 2012 according to that journal’s two databases. In that period, 1277 articles were submitted to the journal.
Results: Of the 271 manuscripts rejected by NEUROLOGÍA, 54 articles (19.9%) were published in other journals. Neurology journals published 31 of the manuscripts (57.4%); 43 manuscripts (79.6%) appeared in Spanish-language journals. Of the rejected manuscripts, 24.1% of the originals, 8.3% of the letters to the editor, 28.9% of the case reports, 22.6% of the reviews and 6.3% of the images were published. Authors with three previously published articles on the same topic managed to publish their manuscripts in 34% of the cases, compared to only 11.8% of authors with fewer published articles (P < .0001). Of the total manuscripts rejected between 2004 and 2010, 24.8% were eventually published. The median time lapse between article submission and publication was 13 months (range, 2–59 months).
Conclusion: Manuscripts rejected by NEUROLOGÍA are often published in other journals, but this scenario is not as common as in English-language journals. In the case of NEUROLOGÍA, the editor’s decision to reject an article is more significant than it would be in an English-language journal because the author will have fewer additional possibilities of having the manuscript published.
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¿Qué ocurre con los artículos médicos remitidos en español que no son aceptados para publicación?

Resumen

Introducción: El destino de los manuscritos remitidos y posteriormente rechazados por una publicación en español no es conocido. El presente estudio está diseñado para analizar si se publican y dónde los artículos remitidos a NEUROLOGÍA y posteriormente rechazados.

Métodos: Se analizan los manuscritos remitidos entre octubre de 2004 y abril de 2012 obtenidos de las 2 bases de datos de la revista. Se realiza una búsqueda en Medline a finales de abril de 2012. En este período 1.277 artículos fueron remitidos a la revista.

Resultados: De los 271 manuscritos remitidos por NEUROLOGÍA, 54 (19,9%) fueron publicados en otras revistas. 31 artículos (57,4%) fueron publicados en revistas neurologicas y 43 (79,6%) en revistas en español. El 24,1% de los originales rechazados, 8,3% de las cartas al editor, 28,9% de los casos clínicos, 22,6% de las revisiones y el 6,3% de las imágenes del mes fueron publicados. El 33,3% de los autores con más de 3 publicaciones sobre el mismo tema vio finalmente publicado su manuscrito, comparado con el 11,8% de los autores con menos publicaciones (p < 0,0001).

El porcentaje de artículos publicados de los manuscritos remitidos entre 2004-2010 fue del 24,8%. La mediana del periodo de tiempo entre el envío del artículo y su publicación fue de 13 meses (rango 2-59).

Conclusión: Los manuscritos remitidos por NEUROLOGÍA son publicados a menudo en otras revistas pero con menos frecuencia que las revistas en inglés. El rechazo como decisión del editor en NEUROLOGÍA es más relevante que en revistas anglosajonas, porque hay menos posibilidades de que el manuscrito sea publicado.

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Introduction

Peer review is the process used by scientific journals in order to improve articles and make decisions related to them. The process consists of forwarding potential articles to experts who will examine their quality and issue constructive criticism to help authors improve their manuscripts. These experts also advise editors on whether or not to publish.⁴⁻⁵ Although the scientific nature of peer review can be questioned, and some sources have criticised its subjectivity⁶⁻⁸ and the complexity,⁹ this process is necessary in order to publish scientific journals. The question raised by this article is what happens to a manuscript that is rejected during the review process. Ideally, the manuscript would be modified based on the feedback received and then sent to another journal to begin a new peer review cycle. A number of journals have analysed the fate of rejected articles as a means of understanding the implications of their editors’ decisions. Considering that a wide range of other journals in the same field or related fields are available, even if we list only those found in the Journal Citation Report (JCR), it seems unlikely that a manuscript with an acceptable level of quality would go unpublished. However, the time an article spends in multiple review processes before publication may have an impact on its scientific relevance.¹⁰ Additionally, the language in which an article is written may be a factor limiting a rejected manuscript’s prospects for publication. The language used by an author restricts the reporting, publication, and divulgence of scientific findings. Journals not published in English generally have much lower impact factors than the rest.¹¹⁻¹³ In addition, journals from Spain¹⁶⁻¹⁸ and Latin America¹⁹ fare no better when they are presented in English because authors in the English-speaking world do not cite them. We can therefore postulate that the rejection of an article written in Spanish has a greater effect on the manuscript’s final outcome than the rejection of an article written in English. In order to test this hypothesis, our study will analyse what happens to articles that NEUROLOGÍA does not accept for publication.

Materials and methods

NEUROLOGÍA, the official journal of the Spanish Society of Neurology (SEN), is published in both Spanish and English versions. However, only the Spanish-language manuscripts undergo peer review. Once an article has been received, editors assign it to referees who are experts in the subject matter. These experts are asked to inform the editors if they are unable to review the manuscript, so that it can be sent to a different referee. referees are given 30 days to provide an evaluation. New experts are consulted only in those cases in which one of the referees does not respond, or when the responses received are very dissimilar. Editors will then use the referees’ answers to determine whether to reject the manuscript or continue with the review process by examining revised versions. Depending on referee recommendations, the manuscript may or may not undergo another peer review before the final decision is made. A recent article describes the profiles of the experts who participate in NEUROLOGÍA’s editorial process.²⁰ We have analysed the articles rejected by that journal’s editorial process between 1 October 2004 and 22 April 2012 in order to ascertain the outcome of these articles.
What happens to medical articles submitted in Spanish that are not accepted for publication?

Databases. A number of databases were used in the completion of this study. The first includes all information about the editorial process at NEUROLOGÍA, while the journal was being managed by Ars XXI, from October 2004 to late 2009. This database was designed and managed by the Spanish Society of Neurology’s Research Operations Office (OAI-SENI). It contains information belonging to the Spanish Society of Neurology which Ars XXI ceded prior to its closure. This information was handled according to confidentiality criteria. All Spanish personal data protection regulations, which apply to all SEN databases, were strictly respected. This database is accompanied by a scanned file of all of the review questionnaires filled out by referees during this period. The second database is the one used by Elsevier’s editorial platform for NEUROLOGÍA (EES). This database is protected and may only be accessed by the editors and the editorial secretary. It includes records for all of the articles and the information and documentation pertaining to them, events in the editorial process, and referees’ reports. With the data obtained from these 2 sources, we created a new database that was managed by one of the authors. This database contained all material necessary for purposes of this study, and it will remain in the custody of the SEN’s Research Operations Office. Study variables include time to publication, article characteristics such as scientific content or manuscript type, journal in which the manuscript was published, and general descriptive information including the manuscript’s country of origin. NEUROLOGÍA often rejects articles on topics in psychiatry, psychology, and experimental areas that are not pertinent to neurology, which is the scope of our journal. In the light of this fact, we have included a variable to indicate manuscripts that are unrelated to the journal’s subject matter. When authors of an article are based in multiple countries, the corresponding author’s country is given. Outcomes for manuscripts were analysed using the MEDLINE database through PubMed http://www.ncbi.nlm.nih.gov. The initial search was performed using the name of the lead author (first surname, second surname, or hyphenated surname) and examining the results for similarities to submitted articles. When articles could not be located using the name of the lead author, we searched the names of other authors or keywords in the title. Medline searches were conducted between 22 April and 1 May 2012.

Variables. Similarity criteria. In order to evaluate an article’s fate, we must first determine whether a published study corresponds to the rejected manuscript. To this end, it was decided that the content must be the same, allowing for small changes in the title, casuistics, discussion, and references, but not in the initial article’s study design or conclusions. Given the risk of finding duplicate publications, we only considered articles published after the manuscript had been received by NEUROLOGÍA. Time to publication was measured from the date NEUROLOGÍA received the article to when it appeared on Medline, whether as an ePUB or published article. We also searched for other published articles addressing the same subject matter as the submitted manuscript (epilepsy, vascular events, etc.) by the corresponding author’s name. In order to compare NEUROLOGÍA to other journals, we defined the degree of relevance of the editorial decision as the number of articles submitted to the journal minus the number of articles eventually published in any journal, divided by the number of total articles submitted to the journal divided by 100. This figure represents the articles that are lost to the literature.

Detecting duplicate publications. Although this task lies outside the scope of the study, the Medline search enabled us to determine whether duplicates of the rejected articles were present. To this end, using the same criteria for determining equality and similarity, we identified attempts at publishing duplicates by examining articles published before NEUROLOGÍA had received the manuscript.

Analysis of results. The resulting data were used to calculate prevalence. This was also done with data from medical literature in order to establish comparability. Qualitative variables were compared using the chi-square test. The statistical analysis of the percentage of rejected manuscripts broken down by manuscript type excludes 3 articles (a historical note, editorial, and book review) because such articles are not subject to peer review.

Results

Of the 1277 articles submitted to NEUROLOGÍA between 1 October 2004 and 22 April 2012, 271 manuscripts (21.22%) were rejected (Table 1 and Fig. 1). The percentage of articles received and rejected varied throughout this period of time (Fig. 2). Broken down by type, the articles comprised 116 originals (42.8%), 60 letters to the editor (22.1%), 45 clinical cases (16.6%), 31 reviews (11.4%), 16 images of the month (5.9%), 1 historical note (0.4%), 1 editorial (0.4%), and

![Figure 1](image1.png)  
**Figure 1** Publication outcomes of articles submitted to NEUROLOGÍA. The relevance index indicates percentage of articles that are not published (17%).

![Figure 2](image2.png)  
**Figure 2** Publication of rejected articles.
1 book review (0.4%). Of the above, 48 manuscripts (17.7%) addressed subjects outside of the scope of NEUROLOGÍA. In 169 cases (62.4%), the lead author had published no more than 3 articles on the same topic. Authors of 199 of the articles (73.4%) were based in Spain, and the rest represented 18 different countries, most commonly Argentina (6.7%) and Mexico (5.6%).

Of the rejected manuscripts, 54 (19.9%) were later published in any of 26 indexed Medline journals (Fig. 1), most commonly Revista de Neurología (27 articles, 50%). Journals mainly focusing on neurology published 31 (57.4%) of these articles; the remaining 42.6% were published by journals addressing other areas of medicine or the neurosciences. Forty-three articles (79.6%) were published in Spanish-language journals. Table 1 shows the percentage of articles published year by year; note the decrease in 2011 and the included part of 2012. This is probably due to these articles undergoing editorial processes in other journals, although it is also possible that articles submitted for publication in 2011 were still being processed at the study end date and may therefore have been rejected. The percentage of articles rejected between 2004 and 2010 (213) and later published was 24.8% (53 articles). After being rejected by NEUROLOGÍA, 24.1% of the originals, 8.3% of the letters to the editor, 28.9% of the clinical cases, 22.6% of the reviews, and 6.3% of the images of the month found a publisher (Fig. 3) (P = .018). The editorial, historical note, and book review were never published.

Other journals published 22.9% of the articles that did not specifically belong to the scope of NEUROLOGÍA; this also occurred with 19.5% of the articles that did address topics in neurology (P = .5). Twenty-one per cent of the Spanish authors and 16.7% of the authors from other countries published their initially rejected articles in other journals (P = .41). While 33.3% of authors with more than 3 publications on the same subject managed to publish their manuscripts, only 11.8% of all authors with fewer published works were able to publish their articles (P < .0001).

The mean time elapsed between receipt of the manuscript by NEUROLOGÍA and publication was 13 months (range, 2–59 months). Fig. 4 displays the yearly distribution of publications that were accepted after an initial rejection. We detected one attempt at publishing a duplicate article, which represented 0.003% of the total rejected manuscripts.

The relevance of the decision made by editors at NEUROLOGÍA, that is, the percentage of articles that are lost to medical literature, was 17%.

Discussion

Editorial processes are subject to influences that are unrelated to the manuscript21,22 and may affect decisions of whether or not to publish. Analysing what becomes of rejected manuscripts is therefore a good quality

![Table 1](image)

Table 1: Articles received and rejected. Yearly changes.

<table>
<thead>
<tr>
<th>Year</th>
<th>Articles received</th>
<th>Articles rejected</th>
<th>Rejected/received (%)</th>
<th>Published/total rejected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004 (beginning in October)</td>
<td>85</td>
<td>3</td>
<td>3.5</td>
<td>1/3 (33.3)</td>
</tr>
<tr>
<td>2005</td>
<td>149</td>
<td>22</td>
<td>14.76</td>
<td>2/22 (9.1)</td>
</tr>
<tr>
<td>2006</td>
<td>177</td>
<td>37</td>
<td>20.90</td>
<td>12/37 (32.4)</td>
</tr>
<tr>
<td>2007</td>
<td>209</td>
<td>69</td>
<td>33.01</td>
<td>17/69 (24.6)</td>
</tr>
<tr>
<td>2008</td>
<td>141</td>
<td>40</td>
<td>28.36</td>
<td>12/40 (30)</td>
</tr>
<tr>
<td>2009</td>
<td>165</td>
<td>18</td>
<td>10.90</td>
<td>2/18 (11.1)</td>
</tr>
<tr>
<td>2010</td>
<td>135</td>
<td>24</td>
<td>17.77</td>
<td>7/24 (29.2)</td>
</tr>
<tr>
<td>2011</td>
<td>196</td>
<td>52</td>
<td>26.53</td>
<td>1/52 (1.9)</td>
</tr>
<tr>
<td>2012 (ending in April)</td>
<td>20</td>
<td>6</td>
<td>30</td>
<td>0/6 (0)</td>
</tr>
<tr>
<td>Total</td>
<td>1277</td>
<td>271</td>
<td>21.22</td>
<td>54/271 (19.9)</td>
</tr>
</tbody>
</table>

![Figure 3](image)

Figure 3: Publication of rejected articles by manuscript type.

![Figure 4](image)

Figure 4: Articles broken down by year of publication. Colours on the graph indicate the year in which an article was published. We observe that most articles were published between 1 and 3 years after being received, especially near the 2-year mark.
control strategy. Numerous journals have examined outcomes for rejected articles, including Indian Pediatrics, American Journal of Neuroradiology (AJNR), Occupational and Environmental Medicine, Annals of Internal Medicine, Cardiovascular Research, Australian Family Physician, Epidemiology, Journal of American Academy of Dermatology, Journal of Vascular and Interventional Radiology, American Journal of Radiology, American Journal of Ophthalmology, and the British Journal of Surgery, all of which are published in English. Only 2 journals published in other languages (Danish, in Journal of the Danish Medical Association and Dutch, in Nederlands Tijdschrift voor Geneeskunde) provide information about the effect of an article’s language on its publication outcome. To our knowledge, the present study is the first to analyse the publication outcome of articles submitted in Spanish after a rejection. In our study, 19.9% of the articles rejected by NEUROLOGÍA were published in Spanish (79.6%) by other journals, especially Revista de Neurología (50%). The first percentage rises to 24.8% when the study period is truncated in 2010.

Table 2 compares percentages of publication of rejected articles in each of the journals listed. Several factors may have an impact on this comparison. One factor affecting the denominator is that the method for detecting published articles has changed with new developments on PubMed. In some articles, publication results were determined by sending surveys to the authors; response rates approached 60% for e-mail surveys. This delivers a lower number of rejected articles, and one might suppose that authors who did not respond may have been unable to publish their articles. However, published articles have also been found for authors who gave no answer. The second factor, affecting the numerator, is that the availability of indexed journals has risen over the years, especially when we view changes in the Journal Citation Report, which has nearly quintupled its list of publications. The third factor has to do with the type of article included in the analysis. Some analyses include only original articles, which various studies cite as having higher publication rates than other articles such as letters to the editor, book reviews, etc. The fourth factor is the time of analysis; in most studies, researchers analyse results approximately 3 years after the end of the study period. Fifth and last, a certain percentage of rejected articles are later accepted by the same journal. This
category may account for 5% to 21% of the articles that are eventually published.\textsuperscript{26,32}

The percentage of articles published after being rejected by \textit{NEUROLOGIA} is lower than that of most English-language journals, but higher than for the 2 non-English language journals. Nevertheless, the overall percentage of 19.9% probably underestimates the number of articles that are eventually published compared to other studies with follow-up periods longer than 3 years. When we analyse the period from 2004 to 2010, the percentage rises to 24.8%. This figure remains lower than percentages of English-language journals, however, which may be explained by the hypothesis that language limits an article’s chances of being published in an alternative journal. In any case, there are fewer Spanish-language journals than English-language journals. The impact of this situation is reflected by the fact that 50% of all the published articles appeared in a single journal, \textit{NEUROLOGIA}. This figure amounts to only 12% in English-language journals such as \textit{American Journal of Neuroradiology}\textsuperscript{23} and \textit{Journal of American Academy of Dermatology}.\textsuperscript{31} Prospects are probably even worse for authors trying to publish in Spanish-language journals representing fields outside of neurology; our specialty has 2 indexed journals, which is not the case for other fields.

It is interesting to note that time to publication for initially rejected articles is longer for English-language journals than for the rest (Table 3). This may suggest that articles in English would pass through several editorial processes since more journals are available, whereas authors attempting to publish in non-English language journals (\textit{NEUROLOGIA}) would exhaust their options sooner. However, a certain percentage of articles are rewritten in English following a rejection (20.3%) in order to improve their chances of being published. This activity suggests that the idea that articles written in English are better than others is fallacious. For example, all of the published articles that had been rejected by the Danish journal were written in English.\textsuperscript{36} In the case of the Dutch journal, 40% of the rejected articles were subsequently published in English.\textsuperscript{37}

Table 1 shows the yearly changes in publication rates for initially rejected articles. Note the inverse relationship between the percentage of articles accepted and the percentage of rejected articles that are subsequently published. This tendency is also present in other journals (Table 2). This means that the more articles a journal rejects, the higher the number of those rejected articles that will subsequently be published by another journal. Nevertheless, the percentage of rejected articles may be linked in turn to the number of articles received. A journal receiving a high volume of manuscripts will also reject a high volume of manuscripts if the number of articles published yearly remains constant. In theory, this tendency can result in improved selection and quality of published manuscripts. This effect may be influenced by the journal’s official language, however.

We did not find any correlations between publication and authors’ country of residence or subject matter (whether or not it was related to the scope of \textit{NEUROLOGIA}). In contrast, there is an association between publication outcome and whether or not the authors have published more than 3 articles on the same subject. This could indicate better production quality or more experience with publishing among these authors, but it may also suggest that referees from many journals use productivity as a decision criterion.\textsuperscript{3,42} In the course of the search, we found one attempt at publishing a duplicate article.\textsuperscript{43} This figure is much lower than the percentage cited by the Dutch study.\textsuperscript{37}

The relevance of the decision made by editors at \textit{NEUROLOGIA}, that is, the percentage of articles lost to medical literature as the result of a negative decision, is 17%, as shown in Fig. 1. Editors of journals that do not receive manuscripts in English have a greater responsibility for their decisions than editors of English-language journals. A rejected article that is not written in English has a lower probability of being published at a later date.

Our study has a number of limitations. It was designed as a retrospective study and performed using PubMed searches, and therefore the number of published articles may have been underestimated. Furthermore, the time elapsed since some articles were rejected, especially those from 2011 and 2012, remains below the mean time to publication, meaning that some rejected articles could still be published. Therefore, the prevalence rate of 24.6% for data up to 2010 may be a better reflection of the true situation. Comparison with other biomedical journals shows that our percentage is lower. As no similar studies can be found in other neurological journals, it is not possible to assess variations between different specialties. The lack of similar data from other Spanish-language journals does not allow us to make comparisons, but we might speculate that their publication rates could be even lower. The field of neurology has 2 indexed journals, which cannot be said for other specialties.

In conclusion, this study shows that the publication rate for articles rejected by \textit{NEUROLOGIA} is lower than that of other journals and only comparable to publication rates of non-English language journals. A certain percentage of the articles that are published after initially being rejected by \textit{NEUROLOGIA} appear in English-language journals. This tendency has also been observed with other non-English language journals. The editor’s role in the publication outcome of an article is more decisive in non-English language journals than in the rest. Rejection of an article that is not written in English entails a greater risk that the article will not be published at all. The fact that some articles rejected by journals that do not receive English-language manuscripts are later published in English implies that editing a journal in English is no guarantee of better article quality or selection.

### Conflicts of interest

The authors have no conflicts of interest to declare.

| Table 3 Time to publication for initially rejected manuscripts (months). |
|---------------------------------|-----------------|
| \textbf{American Journal of Neuroradiology} | 15.8 ± 7.5 |
| \textbf{American Journal of Ophthalmology} | 16.5 |
| \textbf{Annals of Internal Medicine} | 18 |
| \textbf{Journal of Vascular Interventional Radiology} | 15.5 |
| \textbf{NEUROLOGIA} | 13 |
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