analesdepediatría

www.analesdepediatria.org

ORIGINAL ARTICLE

Spanish funded paediatric research: Contribution of ANALES DE PEDIATRÍA to its dissemination☆

María Francisca Abad-García[a,*], **Aurora González-Teruel**[a], **Gonzalo Solís Sánchez**[b]

[a] *Departamento de Historia de la Ciencia y Documentación, Facultad de Medicina, Universitat de Valencia, Valencia, Spain*
[b] *Área de Gestión Clínica, Hospital Universitario Central de Asturias, Oviedo, Asturias, Spain*

Received 6 April 2016; accepted 13 April 2016
Available online 13 May 2017

KEYWORDS
Funding;
Paediatric research;
ANALES DE PEDIATRÍA;
Open access;
Scientific impact

Abstract
Objective: To identify Spanish funded paediatric research published in general paediatric journals included in the Web of Science (WoS) from 2010 to 2014 and those published in ANALES DE PEDIATRÍA. To examine the relationship between funding and the prestige of the journals. To describe the journal conditions to meet the open access criteria.
Material and method: Spanish funded paediatric articles (FA) were identified by using the WoS Funding Agency field, and by reviewing the original documents for Anales de Pediatria (AP). For the FA published in AP the number and kind of funding agencies were identified. The possible differences in citations between FA and non-funded was assessed for articles published in this journal using the Kruskal–Wallis non-parametric test. For general journals, the patterns of distribution of FA and non-FA were investigated according to the quartile of the journal. The journal's self-archiving conditions were described using Sherpa/romeo database.
Results: Funding was received for 27.5%, being 16.6% for those published in AP. In these, 105 funding agencies were identified, with 80% being national. The FA published in AP did not receive significantly more citations. In general journals, the presence of FA is greater in Q1 and Q2 journals. More than half (56%) of the articles were published in subscription journals. All journals that publish FA allow self-archiving in repositories, but with embargos of at least 12 months.
Conclusions: The role of AP in the dissemination of FA is still limited. Embargos in self-archiving permits compliance of Spanish open access mandate, but may hinder compliance in Europe.

☆ Please cite this article as: Abad-García MF, González-Teruel A, Solís Sánchez G. Investigación pediátrica española financiada: contribución de ANALES DE PEDIATRÍA a su difusión. An Pediatr (Barc). 2017;86:306–313.

* Corresponding author.
E-mail address: abad@uv.es (M.F. Abad-García).

PALABRAS CLAVE
Financiación;
Investigación pediátrica;
ANALES DE PEDIATRÍA;
Acceso abierto;
Impacto científico

Investigación pediátrica española financiada: contribución de ANALES DE PEDIATRÍA a su difusión

Resumen
Objetivo: Identificar la investigación pediátrica española financiada publicada en revistas generales pediátricas incluidas en la WoS (2010–2014) y la de ANALES DE PEDIATRÍA (AP). Explorar la relación de la financiación con el prestigio de las revistas y describir sus condiciones para cumplir los mandatos de acceso abierto.
Material y método: La financiación de los artículos publicados en revistas pediátricas generales se identificó utilizando el campo Agencia Financiadora de la WoS y revisando el documento original para AP. Para AP se identificaron las entidades financiadoras de los AF y se valoró la diferencia en la citación de los AF y los no financiados mediante test no paramétrico de Kruskal–Wallis. Se analizó la distribución de los AF y no financiados según cuartil de la revista. De las revistas con AF, se describió su tipo de acceso y su política de autoarchivo utilizando los datos de Sherpa/romeo.
Resultados: El 27,5% de los artículos recibió financiación y el 16,6% de los publicados en AP. En estos se identificaron 105 entidades financiadoras (80% nacionales). Los AF de AP no recibieron un número significativamente mayor de citas. El 60% de AF se publicó en revistas de Q1 y Q2. Un 56% de AF se publicaron en revistas de suscripción. Todas las revistas, menos Paediatrics, permiten el autoarchivo de todos los AF pero con embargos de al menos 12 meses.
Conclusiones: El papel de AP en la difusión de AF es aun escaso. El embargo de las revistas permite el cumplimiento del mandato español de acceso abierto pero no el europeo.

Introduction

Investment in science and technology plays a decisive role in the economic development of a country that can be reflected in an increase of the gross domestic product in the medium term.[1] This requires the establishment of funding policies that fit actual needs as well as monitoring the output of such investments. For these reasons, in recent years there has been an increase in the studies that explore the effects of funding in research, measured in terms of the number and impact of the resulting publications.[2,3] However, one of the challenges facing these studies is how to obtain the information that establishes the ties between funded projects and scientific publications.[4]

The disclosure of the financial support received by a research project is an acknowledgement on the part of the authors, demanded by funding institutions to demonstrate the returns of their investment,[3] and vital in the identification of potential conflicts of interest.[5] Therefore, journals are increasingly documenting this information in the acknowledgement section, although direct mining of these data may be costly. In this regard, the inclusion since 2008 of funding acknowledgement data in the Web of Science (WoS) constitutes considerable progress, as it allows bibliometric data mining[4,6] to analyse the impact of funding at the country level,[7] by subject area[6] or in specific fields.[3]

Journals also have an interest in assessing their ability to publish publicly funded research due to its potential scientific impact,[3,8,9] given the quality they expect of these works based on the stringent selection processes applied by funding agencies. The ability to attract this type of works depends on various factors. Some are associated with quality indices, criteria that are used to assess the quality of the research and whose influence has been reflected, for instance, in the higher frequency of funding in the Spanish articles published in journals ranked in the first quartile of their category in the Journal Citation Report (JCR).[6] Other factors, whose impact is yet unknown, have to do with the conditions offered by journals for fulfilling the open access requirements established by certain funding institutions.

Thus, for example, when it comes to Spain, article 37 of Law 14/2011 on Science, Technology and Innovation mandates that researchers whose activity has been mostly financed with funds from the General Budget of the State make public a digital final version of the contents that have been accepted for publication in research journals in an open-access repository no later than 12 months after the official date of publication.[10] Similar conditions have been established for research supported by European funds. As early as August 2008, the European Commission launched an open access pilot initiative in the context of its Seventh Framework Programme that required beneficiaries of grants in seven subject areas, including Health, to ensure the open access of the publications resulting from these projects.[11] At present, this obligation is set by the Horizon 2020 research programme,[12] which requires authors to deposit the accepted version of their works in an open-access repository within a maximum of six months, which can be extended to 12 months only for articles in the fields of social sciences and humanities.

In this context, our study aimed at determining the role of ANALES DE PEDIATRÍA as a vehicle for the dissemination of publicly funded Spanish research in paediatrics with international visibility, and to explore the association between funding and certain characteristics of the general paediatrics journals where these works are published. The specific objectives of our study were:

a. To determine the volume of research in paediatrics conducted in Spain that has been published in general paediatrics journals included in the WoS.
b. To describe the volume of publicly funded paediatric research in Spain published in ANALES DE PEDIATRÍA and whether there is an association between funding and more frequent citation.
c. To explore the association between funding of a research project and the quartile of the journal where the research is published.
d. To describe the conditions offered by journals that publish publicly funded research for fulfilling open access mandates.

Materials and methods

We based this study on the 741 Spanish articles on paediatrics published between 2010 and 2014 in general paediatrics journals indexed in the WoS that were identified in a previous article.[13]

We considered that an article had received funding when this information was provided in the Funding Agency field of the WoS. The WoS has been collecting data on funding since 2008, although only for journals published in English.[6] For this reason, we identified funded articles published in ANALES DE PEDIATRÍA by consulting the original documents. For this journal, we calculated the annual distribution of funded articles and of the number of funding institutions and their scope (national or international). We assessed the association between funding and the impact of the article by analysing potential differences in the distribution of citations of funded and not-funded articles, obtained from data downloaded from the WoS, by means of the nonparametric Kruskal–Wallis test.[14]

For the journals that published the 741 articles included in this study, we analysed the distribution of funded articles based on the quartile ranking of the journal in the Paediatrics subject category of the 2012 JCR (Science edition).

For the journals that had published funded articles, we analysed the following characteristics associated with the potential fulfilment of open access mandates:

a. Type of journal: open access or subscription. The former were further divided into open journals (readers can freely access, read and download their contents with unrestricted reuse based on a Creative Commons license) and free journals (free access, reading and downloading but restricted reuse subject to the publisher's copyright).[15] Subscription journals were divided into those providing free access following an embargo period and hybrid journals offering the possibility of freeing articles by the payment of publication fees.

Table 1 Annual distribution of funded articles published in ANALES DE PEDIATRÍA.

	Number of articles in *An Ped*	Number of funded articles	Annual % of funded articles
2010	90	16	17.8
2011	90	14	15.5
2012	82	17	20.7
2013	95	16	16.8
2014	82	10	13
Total articles	439	73	16.6

b. Policy regarding self-archiving of article postprints. The source we used was SHERPA/RoMEO, a database on journal copyright and self-archiving policies.[16] We collected data on the following:
   1. Journal colour, assigned based on its self-archiving policies: green, allowing self-archiving of preprints (drafts before peer review) and postprints (drafts including the revisions made after peer review); blue, allowing self-archiving of postprints; yellow, allowing self-archiving of preprints and postprints under certain restrictions; and lastly, white for journals with substantial restrictions on self-archiving.
   2. Post-print copy allowed for archiving: author's postprint or publisher's PDF (copy of record).
   3. Type of open access repository: institutional repository, subject repository, or both.
   4. Timing of archiving: immediately after acceptance or publication, or following an embargo period. When the duration of the embargo period was not specified, we obtained it from the journal's website.

Results

Role of ANALES DE PEDIATRÍA in the publication of funded research

Of the 741 Spanish articles in paediatrics published in general paediatrics journals, 204 (27.5%) had received some type of funding. We identified 131 (64.2%) of the funded articles through the WoS database, and 73 (35.7%) by reviewing ANALES DE PEDIATRÍA.

The funded articles published in ANALES DE PEDIATRÍA amounted to 16.6% of the 439 articles published by the journal during the period under study. We found the greatest proportion of funded articles in years 2010 and 2012 (Table 1).

We identified 105 funding institutions in the 73 funded articles. Fifty articles (68.5%) reported a single funding institution; fifteen (20.5%) reported two funding institutions; seven (9.6%), three institutions; and only one article (1.4%) reported four. Eighty four (80%) of the funding institutions were of national scope, and 21 of international scope (Table 2). The national institutions that provided funding most frequently were the Instituto de Salud Carlos III (ISCIII), the governments of the autonomous communities, and scientific societies and foundations. Leading among the latter were the Sociedad

Table 2 Sources of funding of the articles published in ANALES DE PEDIATRÍA.

Funding institutions	National	International	Total
ISCIII (MEC)	30	0	30
Foundations	15	2	17
Autonomous community governments	13	0	13
Scientific societies	12	0	12
Corporations	1	8	9
European funds	0	7	7
Ministries	5	1	6
Universities	3	1	4
Hospitals	3	0	3
Networks	0	2	2
Other	2	0	2
Total	84	21	105

de Pediatría de Asturias, Cantabria y Castilla y León, which funded three articles, and the Sociedad Española de Neumología and the Asociación Española de Pediatría, each of which funded two. International founding sources consisted mainly of corporations—usually multinational—and European Commission funds.

The 73 funded articles published in ANALES DE PEDIATRÍA were cited 98 times and the 361 non-funded articles were cited 348 times. Our analysis of citation patterns showed that the differences in the citation distribution were not statistically significant.

General paediatrics journals and the publication of funded research

The 741 paediatrics articles were published in twenty-three journals, of which nineteen were published in English (258 articles), two in Spanish (480 articles), one in French (2 articles) and one in German (1 article) (Table 3). Thirteen journals published at least one funded article, led by ANALES DE PEDIATRÍA with 73 articles (35.8%), *Journal of Paediatrics* with 39 (19.1%) and Paediatrics and the *European Journal of Paediatrics* with 25 (12.3%).

One hundred and twenty one funded articles (60%) were published in first- and second-quartile journals, while 371 (77.5%) of non-funded articles were published in third-quartile journals (Fig. 1).

Table 3 Distribution of general paediatrics journals by number of funded articles.

General paediatrics journals	Number of articles	Number of funded articles	Language	2012 JCR Quartile
ANALES DE PEDIATRÍA	439	78	Spanish	Q3
Journal of Paediatrics	48	39	English	Q1
Paediatrics	38	25	English	Q1
European Journal of Paediatrics	52	25	English	Q2
BMC Paediatrics	23	14	English	Q2
Archives of Paediatrics & Adolescent Medicine-JAMA Pediatrics[a]	11	10	English	Q1
Archives of Disease in Childhood	14	6	English	Q1
World Journal of Paediatrics	6	4	English	Q3
Journal of Paediatrics and Child Health	6	4	English	Q3
Academic Paediatrics	1	1	English	Q1
Current Opinion in Paediatrics	2	1	English	Q1
Jornal de Pediatria	2	1	English/Portuguese	Q3
Archivos Argentinos de Pediatría	41	1	Spanish	Q4
Acta Paediatrica	39	0	English	Q2
Paediatrics International	7	0	English	Q3
Indian Journal of Paediatrics	4	0	English	Q4
Archives de Pediatrie	2	0	French	Q4
Paediatric Clinics of North America	1	0	English	Q2
Klinische Padiatrie	1	0	German	Q2
Clinical Paediatrics	1	0	English	Q3
Indian Paediatrics	1	0	English	Q3
Hong Kong Journal of Paediatrics	1	0	English	Q4
Turkish Journal of Paediatrics	1	0	English	Q4

[a] The journal Archives of Paediatrics & Adolescent Medicine changed its name to JAMA Paediatrics in 2013.

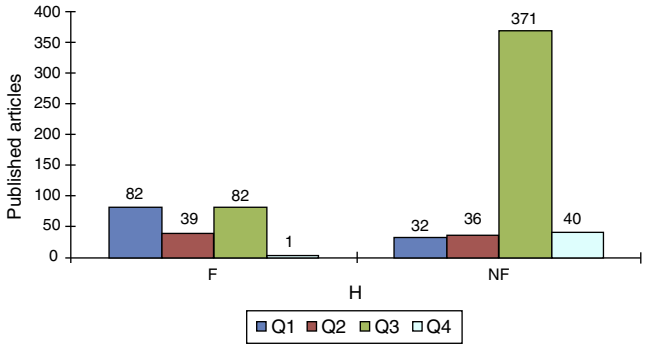

Figure 1 Distribution of funded and not-funded articles by journal quartile ranking.

Table 4 Distribution of general paediatrics journals by type of journal.

Type of journal	Number of journals	Number of funded articles	% funded articles
Open	2	15	7.4
Free	2	74	36.3
Free following embargo	2	35	17.2
Hybrid	6	79	38.7
Subscription-only	1	1	0.5
Total	13	204	100

The proportion of funded articles was greater the higher the quartile ranking of the journal, and funded articles amounted to 72% of those published in first-quartile journals (Fig. 2).

Type of journal that published funded articles

One hundred and fifteen funded articles (56.4%) were published in subscription journals, with a predominance of the hybrid subtype (38.9%), which offered authors the option of paying a fee to have their articles freed (Table 4). The two free journals in the open-access category published 74 funded articles (36.2%), while the two open journals in the open-access category published 15 (7.1%). Of the latter, only *BMC* Paediatrics used the fee-for-publication model.

Open access repository self-archiving options for article postprints

Journal colour and type of repository

The SHERPA/RoMEO database had information on all the journals under study except *Archivos Argentinos de Pediatría* (Table 5). The analysis by journal colour showed that 163 funded articles (80%) were published in eight green journals that allowed depositing postprints (of funded as well as not-funded articles) both in subject and institutional repositories.

Five articles (2.4%) were published in two yellow journals, both of which allowed depositing postprints in institutional repositories for all articles (funded or not). When it came to archiving in subject repositories (PubMed Central), *Current Opinion in Paediatrics* only allowed it based on the requirements of the funding institution.

Thirty-five articles (17.2%) were published in two white journals that only authorised archiving of funded articles. *JAMA Paediatrics* allowed archiving in non-commercial repositories for articles funded by not-for-profit institutions, and Paediatrics archiving in PubMed Central of articles funded by the National Institutes of Health (NIH).

Postprint archiving

With the exception of open access journals and *JAMA Paediatrics*, the final version authorised for archiving was the author's copy incorporating the revisions made through the peer-review process.

Embargo period before archiving

All journals except those that are open access specify an embargo period during which articles cannot be archived that is never shorter than 12 months. Only *Archives of Disease in Childhood* and *Current Opinion in Paediatrics* shorten this period if required by the funding institution.

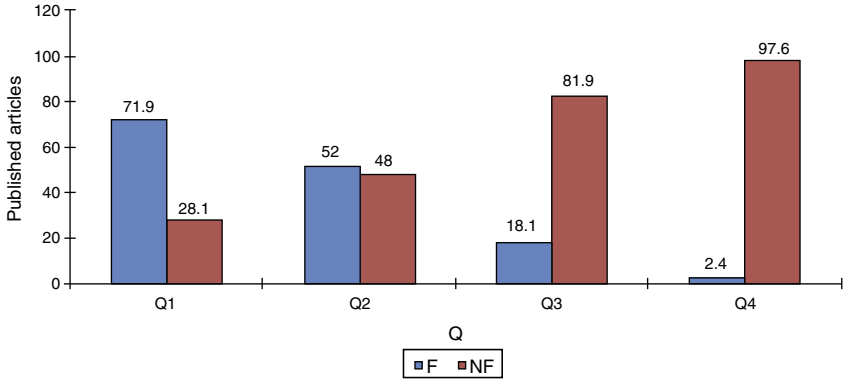

Figure 2 Proportion of funded articles by journal quartile ranking.

Table 5 Distribution of funded articles based on the characteristics of general paediatrics journals.

General paediatrics journals	Articles (*n*)	Funded articles (*n*)	Publisher	Type of journal	Self-publishing option	Colour	*Post-print copy*	Type of article[a]	Type of repository	Months of embargo (SHERPA/RoMEO)
Anales de Pediatría	439	73	Elsevier	OA_free	No	Green	Author's	All	Both	12/48
Journal of Paediatrics	48	39	Elsevier	Hybrid	Yes	Green	Author's	All	Both	12/48[b]
Paediatrics	38	25	Amer Acad Paediatrics	Subscription. Free after 12 month embargo	No	White	Author's	Funded only	Subject (PubMed Central)	12
European Journal of Paediatrics	52	25	Springer	Hybrid	Yes	Green	Author's	All	Both	12
BMC Paediatrics	23	14	Biomed Central_Springer	OA-Open	Yes	Green	PDF	All	Both	No
Archives of Paediatrics & Adolescent Medicine-JAMA Paediatrics	11	10	American Medical Association	Subscription. Free after 12 month embargo	No	White	PDF	Funded by not-for-profit institutions only'	Non-commercial repository	12
Archives of Disease in Childhood	14	6	BMJ Publishing Group	Hybrid	Yes	Green	Author's	All	Both	12 months for PubMed Central for funded articles
World Journal of Paediatrics	6	4	Springer	Hybrid	Yes	Green	Author's	All	Both	12
Journal of Paediatrics And Child Health	6	4	Willey	Hybrid	Yes	Yellow	Author's	All	Both	12 months. May vary based on funding agency or publication fee
Jornal de Pediatria	2	1	Elsevier	OA-Open	No	Green	PDF	All	Both	NO
Academic Paediatrics	1	1	Elsevier	Hybrid	Yes	Green	Author's	All	Both	12/48[b]
Archivos Argentinos de Pediatría	41	1	Sociedad Argentina de Pediatría	OA-free	Not documented	Not documented	Not documented	Not documented	Not documented	Not documented
Current Opinion in Paediatrics	2	1	Wolters Kluwer	Subscription	No	Yellow	Author's	All	Institutional Subject only funded articles	12. May vary depending on funding agency requirements

[a] All: funded and not funded articles.
[b] Twelve months' embargo based on information from the journal.

Discussion

Our study is the first to explore funding in Spanish paediatrics articles indexed in the WoS. The restriction of the study to general paediatrics journals makes sense insofar as they constitute the reference framework for assessing the role of ANALES DE PEDIATRÍA in the publication of these articles.

In these journals, 27.5% of the articles had been supported by some type of funding, a percentage that was far from the 59% found for Spanish articles in Clinical Medicine fields published in journals in English indexed in the WoS.[6] This difference could be attributed to the methodology, for if we were to exclusively consider articles in journals published in English, we would have obtained a percentage of 50%. However, this would not take into account the proportion of articles published in domestic, non-English journals in certain fields, when in fact in the period under study, ANALES DE PEDIATRÍA published 59% of the articles in this group of journals.

When it came to ANALES DE PEDIATRÍA, it played a significant role in the dissemination of funded paediatric research, as it published 35.8% of these articles. However, the proportion of these articles in the journal (16.6%) remained low and, contrary to the findings of other studies,[7–9] we did not find the scientific impact of this type of article to be superior to that of not-funded articles. The funding sources were mostly domestic and public, among which the ISCIII was a key player, while European funds were the most frequent international source. This is very relevant when it comes to complying with the open access mandates that we will discuss later in the article. The Asociación Española de Pediatría, which has its voice in the journal, was only mentioned as a funding institution in two articles.

In the framework of general paediatrics journals, our results have shown the positive association of journal quality with the attraction of funded articles, as there was a greater proportion of funded articles in journals ranked in the first and second quartiles, and the proportion of funded articles was greater the better the quartile ranking of the journal, amounting to up to 71% of the articles in journals ranked in the first quartile, a figure that is very similar to the overall figure reported for Spanish articles indexed in the WoS.[6]

As for the type of journals, only four (30%) of general paediatrics journals that published funded articles were open access (including both the open and free modalities), a proportion that was very close to the 28% of such journals indexed in the Directory of Open Access Journals (DOAJ).[17,18] The free access provided by these journals did not seem to be a determinant for the presence of funded articles, as most of these were published in subscription journals (56.4%). Free access offers immediate access and visibility, but not compliance with open access mandates, which also call for self-archiving in a repository, even for articles published in open journals. This is because these infrastructures allow the long-term preservation of these documents and their identification by browsers through the attachment of metadata.[12]

The analysis of self-archiving policies revealed that all journals (except Paediatrics) allowed the archiving of articles in institutional repositories regardless of their colour, and that all journals, with the exception of those that were open access, established embargo periods of at least 12 months. We found this restriction noteworthy, as there were no differences in the conditions offered by green journals, which theoretically are more permissive of self-archiving, and those offered by yellow journals, generally considered less supportive of open access, which they restrict by means of embargo periods.

Embargo periods affect adherence to open access mandates. Thus, the European mandate that establishes a six-month limit for the biomedical field[12] can only be fulfilled by articles published by the *Journal of Paediatrics and Child Health* or *Current Opinions in Paediatrics*, as these journals adjust their periods to the policies of the funding agency. The fact that embargo periods exceed the mandated time frames forces authors to resort to the various fee-for-publication schemes offered by subscription journals (hybrid journals) as the only possible means to fulfil open access requirements.

The mandate of the Spanish Law of Science could be satisfied by all journals with embargo periods of no more than 12 months, which would exclude Paediatrics and ANALES DE PEDIATRÍA; the duration of this period remains unknown for *Archivos Argentinos de Pediatría*.

We need to mention two issues in relation to *Anales de Pediatría*. The first is that for many of the journals published by Elsevier, the SHERPA/RoMEO database provides the publisher's general policy regarding self-archiving, which establishes embargo periods of 12–24 months' duration. The second is that while this is also the case of the *Journal of Paediatrics* and *Academic Paediatrics*, the websites of these two journals provide more specific information specifying that the duration of the embargo is of 12 months, while the website of *Anales* does not provide any information on the subject, so that the only reference we had for this study was the data provided by SHERPA/RoMEO. This is a very important aspect, as Elsevier's policy may hinder adherence to mandates and open access to articles,[19,20] and calls into question the classification of these journals as ''green''.

In this regard, we ought to mention that while Elsevier plays an important role in the management of manuscripts and their subsequent dissemination and commercialization, in the specific case of this journal, the copyrights and permissions remain with the Asociación Española de Pediatría, which grants the association the power to establish the conditions for the reuse of published documents, and to propose less restrictive self-archiving conditions for the publication of funded articles. Considering their relevance in relation to regulations, these conditions should be covered in the information provided to the authors.

In short, all of the above provides an initial exploration of funding in paediatrics research in Spain, whose assessment requires more thorough investigation. Our findings suggest that ANALES DE PEDIATRÍA has a long way to go to establish itself as a vehicle for the dissemination of funded paediatrics research.

Funding

This study was conducted within the framework of the project ''Open access to science in Spain: assessment of its impact in the scientific communication system,'' funded by

the Spanish Government, Ministry of Economy and Competitiveness, National Plan for R&D (CSO2014-52830-P).

Conflicts of interest

María Francisca Abad-García is a member of the Editorial Board of ANALES DE PEDIATRÍA. Gonzalo Solís Sánchez is an associate editor of ANALES DE PEDIATRÍA.

References

1. Gruss P. Driven by basic research. Science. 2012;336:392–402.
2. Rigby J. Systematic grant and funding body acknowledgement data for publications: new dimensions and new controversies for research policy and evaluation. Res Eval. 2011;20:365–75.
3. Wang J, Shapira P. Is there a relationship between research sponsorship and publication impact? An analysis of funding acknowledgments in nanotechnology papers. PLoS ONE. 2015;10:e0117727.
4. Costas R, Yegros-Yegros A. Possibilities of funding acknowledgement analysis for the bibliometric study of research funding organizations: case study of the Austrian Science Fund (FWF). In: Gorraiz J, Schiebel E, Gumpenberger C, Hörlesberger M, Moed H, editors. Proceedings of the 14th International Society for Scientometrics and Informetrics Conference. 2013. p. 1401–8.
5. Henderson C, Howard L, Wilkinson G. Acknowledgement of psychiatric research funding. Br J Psychiatry. 2003;183:273–5.
6. Díaz-Faes AA, Bordons M. Acknowledgments in scientific publications: presence in Spanish science and text patterns across disciplines. J Am Soc Inf Sci. 2014;65:1834–49.
7. Gök A, Rigby J, Shapira P. The impact of research funding on scientific outputs: evidence from six smaller European countries. J Am Soc Inf Sci. 2015;67:715–30, http://dx.doi.org/10.1002/asi.23406.
8. Costas R, Leeuwen TN. Approaching the reward triangle: general analysis of the presence of funding acknowledgments and ''peer interactive communication'' in scientific publications. J Am Soc Inf Sci. 2012;63:1647–61, http://dx.doi.org/10.1002/asi.22692.
9. Levitt JM. Are funded articles more highly cited than unfunded articles? A preliminary investigation. In: Proceedings of ISSI 2011: The 13th Conference of the International Society for Scientometrics and Informetrics. ISSI: Durban; 2013. p. 1013–5.
10. BOE, Ley 14/2011 de 1 de junio de la ciencia, la tecnología y la innovación. BOE n.° 131, jueves 2 de junio del 2011.
11. European Commission Open Access Pilot in FP7 [Internet]. European Commission; 2008 [accessed 31 Mar 2016]. Available from: http://ec.europa.eu/research/science-society/document_library/pdf_06/open-access-pilot_en.pdf
12. European Commission Guidelines on open access to scientific publications and research data in Horizon 2020 [Internet]. European Commission; 2013 [accessed 31 Mar 2016]. Available from: http://ec.europa.eu/research/participants/data/ref/h2020/grants_manual/hi/oa_pilot/h2020-hi-oa-pilot-guide_en.pdf
13. Abad-Garcia MF, Gonzaléz Teruel A, Solís Sánhez G. Contribución de Anales de Pediatría a la visibilidad internacional de la investigación pediátrica española en la Web of Science (2010–2014). An Pediatria. 2016, http://dx.doi.org/10.1016/j.anpedi.2016.01.005.
14. McDonald JH. Handbook of biological statistics, vol. 2. Baltimore: Sparky House Publishing; 2009.
15. Suber P. Gratis and libre open Access [Internet]-SPARC Open Access Newsletter 2008 [accessed 31 Mar 2016]. Available from: http://www.sparc.arl.org/resource/gratis-and-libre-open-access
16. Sherpa/Romeo [Internet]. Publishing copyright policies & self-archiving [accessed 31 Mar 2016]. Available from: http://www.sherpa.ac.uk/romeo/index.php?la=en&fIDnum=&mode=simple
17. Directory of Open Acces Journals (DOAJ) [Internet]. Infrastructure services for Open Access C.I.C. [consulted 31 Mar 2016]. Available in: http://doaj.org
18. Kozak M, Hartley J. Publication fees for open access journals: different disciplines–different methods. J Am Soc Inf Sci. 2013;64:2591–4.
19. Elsevier [Internet]. Open Access: providing researchers with open access choices [accessed 31 Mar 2016]. Available from: https://www.elsevier.com/about/open-science/open-access#
20. Conference of Open Access Repositories (COAR) [Internet]. Statement against Elsevier's sharing policy [accessed 31 Mar 2016]. Available from: https://www.coar-repositories.org/activities/advocacy-leadership/statements-and-guidelines/petition-against-elseviers-sharing-policy/