

Dos décadas de Acta Colombiana de Psicología: un análisis bibliométrico

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Resumen

El objetivo del presente estudio fue realizar un análisis bibliométrico de la revista *Acta Colombiana de Psicología*, debido a sus dos décadas de trabajo ininterrumpido (1998-2017). Inicialmente, se describen elementos históricos en la trayectoria de la revista y se releva su evolución cronológica a partir de una base de datos que consideró 388 artículos científicos en su muestra final; posteriormente, se realizaron los análisis de los índices de productividad (Lotka) y de las temáticas y metodologías utilizadas. Asimismo, se desarrolló un análisis de los indicadores de colaboración y de las relaciones entre los autores con respecto a los países firmantes. En los resultados se destaca la gran cantidad de trabajos provenientes de instituciones mexicanas, se visualiza un alza sostenida en la colaboración –lo que se evidencia en los índices de Lawani y Subramanyam–, y se encuentra que la mayor cantidad de trabajos se enfocó en las áreas de psicología clínica y de la salud. El análisis realizado permite exhibir lo realizado por la revista a lo largo de dos décadas de trabajo científico en las que se aportó de manera fundamental al desarrollo de la psicología en Hispanoamérica.

Palabras clave: bibliometría, indicadores, producción científica, revista, psicología.

Two decades of Acta Colombiana de Psicología: a bibliometric analysis*

Abstract

The aim of the present study was to conduct a bibliometric analysis of the journal *Acta Colombiana de Psicología*, by virtue of its two decades of uninterrupted work (1998-2017). Initially, historical elements are described in the trajectory of the journal and its chronological evolution is revealed from a database that in its final sample took into account 388 scientific articles. Subsequently, the appraisal of the productivity indices (Lotka) as well as of the topics and methodologies used was carried out. Likewise, an appraisal of the collaboration indicators and the relationships between the authors with respect to the signatory countries was performed. The results highlight the large number of papers from Mexican institutions, a sustained increase in collaboration is visualized -which is evident in the Lawani and Subramanyam indices-, and it is found that the largest amount of papers focused on the areas of clinical and health psychology. The analysis undertaken allows showing what the journal has achieved throughout two decades of scientific work during which it contributed fundamentally to the development of psychology in Latin America.

Key words: bibliometrics, indicators, scientific production, journal, psychology.

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The authors dedicate this article to the memory of Carlos Vargas Ordóñez (1938-2018), Dean of the Faculty of Psychology of the Catholic University of Colombia, Director of the Journal Acta Colombiana de Psicología, since its foundation (1998). His particular balance between a great human quality and enormous management capacity is also responsible for the success achieved by this scientific journal.

Duas décadas de Acta Colombiana de Psicología: uma análise bibliométrica

Resumo

O objetivo do presente estudo foi realizar uma análise bibliométrica da revista *Acta Colombiana de Psicología*, devido a suas duas décadas de trabalho ininterrupto (1998-2017). Inicialmente, descrevem-se elementos históricos na trajetória da revista e revela-se sua evolução cronológica a partir de uma base de dados que considerou 388 artigos científicos em sua amostra final. Posteriormente, foram realizadas as análises dos índices de produtividade (Lotka) e das temáticas e metodologias utilizadas. Além disso, foi desenvolvida uma análise dos indicadores de colaboração e das relações entre os autores com respeito aos países signatários. Nos resultados, destaca-se a grande quantidade de trabalhos provenientes de instituições mexicanas, visualiza-se uma alta prolongada na colaboração — o que se evidencia nos índices de Lawani e Subramanyam —, e nota-se que a maior quantidade de trabalhos concentrou-se nas áreas de psicologia clínica e da saúde. A análise realizada permite exibir o feito da revista ao longo de duas décadas de trabalho científico nas quais colaborou de maneira fundamental para o desenvolvimento da psicologia na América espanhola.

Palavras-chave: bibliometria, indicadores, produção científica, psicologia, revista.

INTRODUCTION

Scientific psychology in Colombia was born in connection with the fields of education, medicine and hypnotism, being the latter the publication of the first scientific article, by Dr. Proto Gómez, in the year 1888 (Ardila, 1967). Bearing this in mind, from the end of the 19th century until the beginning of the 20th century, psychology was established in the country as a field of study for Colombian researchers of the time, dealing with subjects that responded to the intellectual influences of the postcolonial movements of that time. (Oviedo, 2012).

However, it was not until the middle of the 20th century that psychology began its professional training when in 1947 the Spanish Mercedes Rodrigo founded the Institute of Applied Psychology at the National University of Colombia (Ardila, 1967; Giraldo & Rodriguez, 1997), at the same time that Chile started the training of psychologists through the Special Course on Psychology at the University of Chile (Salas, 2014).

Although the history of scientific journals of psychology worldwide had its origin at the end of the 19th century (Polanco-Carrasco, Gallegos, Salas & López-López, 2017), in Latin America it occurred at different times of the 20th century, and, for the Colombian case, the first scientific journal that was created was the *Revista de Psicología*, in 1956 - thanks to the work of Dr. Luis Jaime Sánchez - and, later, the *Revista Latinoamericana de Psicología*, in 1969 – founded by Dr. Rubén Ardila- (Dominguez Blanco & Duque, 1993; Giraldo & Rodriguez, 1997), a crucial journal for the development of Latin American psychology (López-López & Calvache, 1998), which in its beginnings was considered an ambitious idea and in whose prosperity few people believed (Gallegos, 2010).

Scientific journals are a compendium of knowledge developed in a specific region and whose production

favors the opening of knowledge generated within certain scientific spaces, enhances the development of countries and gives lights on the context in which they develop (Pire, 2015, Vera-Villaruel, López-López, Lillo & Silva, 2011). However, due to the large number of articles that the journals store in their archives, it is necessary to create and use tools to quantify the production of science, for example, by means of strategies such as analysis through bibliometrics (Buena-Casal & López, 2005; Zych & Buena-Casal, 2010).

This type of strategy -bibliometrics- has been applied to several journals, such as the *Journal of Cross Cultural Psychology* [JCCP], which has been relieved several times (Best & Everett, 2010; Brouwers, Van Hemert, Breugelmans, Van de, & Vijver, 2004; Lonner, 1980); the *Journal of Environmental Psychology* [JEP] (Milfont & Page, 2013); the Chilean journal *Psyche* (Salas et al., 2017); and even the journal object of the present paper, *Acta Colombiana de Psicología*, which carried out a study on the publications of the period between 2010 and 2014 (Ravelo, Mejía, & González, 2016); all of which contributes to the understanding of the dynamics of journals in the scientific context.

Bearing in mind the above, the objective of this paper is to carry out a bibliometric analysis and, additionally, to provide an overview of the past, the current state and the projections regarding the history and scientific production of the journal *Acta Colombiana de Psicología* [hereinafter referred to as *Acta*] during its 20 years of trajectory (1998-2017), in order to identify and analyze various bibliometric indicators.

History and current state of Acta

Acta is published by the Faculty of Psychology of the Catholic University of Colombia with the purpose of contributing to the development of psychological science. Its publications are mainly aimed at relevant problems

in scientific psychology, and its expected scope aims to reach universities, private entities and the State, as well as health and education centers. Since its inception, this journal was conceived as a tool for all those interested in studying and sharing academic experiences in psychology and in some medical subjects, as well as for identifying the needs of modern society, new developments in those areas, and studying their applications in different fields (Vargas, 1998). All of this has remained in its essence, despite the fact that there have been some changes in the various stages of *Acta's* development.

Specifically, in October 1998 the first issue of the journal was published -with an annual periodicity-, dedicated to the subject of the psychological research on addictions as a result of the creation of the *Center for Studies and Research on Addictions* of the institution (Flórez Alarcón, 1998). *Acta* appeared at a time when there were few consolidated titles of psychological journals in the country, and where the main reference was the aforementioned *Revista Latinoamericana* -which celebrated its third decade by then- (Ardila, 1998), the only Colombian scientific journal included in the citation indexes of the Institute for Scientific Information (ISI). At that time, the national panorama of current and indexed psychological journals was also composed of the following titles: *Advances in Latin American Clinical Psychology* (founded in 1982), *Inter-American Journal of Occupational Psychology* (in 1982), *Revista Colombiana de Psicología* (in 1992) and *Suma Psicológica* (in 1994) (Pérez-Acosta & Perilla Toro, 1996).

Regarding psychological research, at that time Colombia began to generate quality production, which justified the creation of new local publishing media (Ardila & Pérez-Acosta, 2010), as well as groups and research centers that were recognized by the Administrative Department of Science, Technology and Innovation -Colciencias-[for its Spanish acronym]. Thanks to this development, psychological laboratories, postgraduate research (both Master's and doctoral programs), international academic events and research awards were forged (Pérez-Acosta & Perilla Toro, 2006). At that time, psychological research in the country focused on the areas of social psychology, experimental behavioral analysis, neuropsychology and psychobiology, measurement and evaluation, learning, cognition, developmental psychology, clinical psychology, health psychology, the world of work, and psychology of personality (Ardila, 2013).

Similarly, that moment of research maturity was also lived in the Faculty of Psychology of the Catholic University of Colombia (Vargas, 1998), which had already completed 25 years with a growing development in many different areas such as educational psychology, organizational psychology, legal psychology, clinical psychology, psychological

measurement and evaluation, and even basic psychology. Thus, not coincidentally, *Acta's* subsequent publications (since 2000 its periodicity changed to six-monthly) were monographic issues dedicated to research in these areas. Similarly, these developments were supporting the creation of graduate programs in the institution at the level of Specialization, Master's and Doctorate, as it was reported in the successive notes of the "institutional information" section of the journal.

The Dean of the Faculty of Psychology, Carlos Vargas Ordóñez, entrusted at that time the editorial responsibility of the new journal to the Research Director of the Faculty, Dr. Ernesto Ravelo, who is still its Editor at present. Dr. Ravelo relied on the Editorial Committee of the Faculty, which since its early years, in addition to the Dean, was made up by Héctor Balmes Ocampo, Arturo Bríñez Horta, Leonor Delgado Abella, Luis Flórez Alarcón, Nohelia Hewitt Ramírez, Patricia Hernández Zubieta, Marta Lozano Ardila, Judit Martínez, Andrés M. Pérez-Acosta, José Antonio Sánchez González and Nancy Vargas Espinosa, professors of the Faculty.

Between 1998 and 2005, *Acta* had a first stage characterized by the publication of thematic issues supported by the researchers of the institution in each of the following fields:

- Research on addictions and violence: issues 1 (1998), 4 (2000) and 9 (2003).
- Educational Psychology: issues 2 (1999) and 3 (2000).
- Measurement and evaluation in psychology: issue 5 (2001).
- Legal Psychology: issue 6 (2001).
- Clinical psychology: issues 7 (2002) and 12 (2005).
- Analysis of human behavior: issue 8 (2002).
- Basic Psychology: issue 10 (2003).
- Social Psychology: issue 12 (2004).

And during this first stage various responsibilities and committees were differentiated within the journal:

- Director: Carlos Vargas Ordóñez.
- Editor: Ernesto Ravelo Contreras.
- Editorial coordination: Stella Valbuena García.
- Editorial Committee (2005): Luis Flórez Alarcón, Alba Lucía Meneses Báez, Rosalía Montealegre Hurtado, Carlos Pardo Adames and Andrés M. Pérez-Acosta.
- Editorial Board (2005): Delcy Elena Cáceres, Leonidas Castro Camacho, Duilio Cruz Becerra, Lucía Chávez Correal, César Rey, Beatriz Molano and Luz Anyela Morales Quintero.
- Scientific Committee (2005): Rubén Ardila, Alfredo Ardila, Vicente E. Caballo, María Helena Leite Hunziker, Héctor Martínez Sánchez, Maritza Montero, Alba E. Mustaca, José I. Navarro Guzmán, Ricardo Pellón, Wanda Rodríguez Arocho and Andrés Santamaría Santigosa

Thanks to the leadership and the competent and judicious management of the Editor, the journal also achieved its inclusion in the National Bibliographic Index of scientific journals, *Publindex*, of Colciencias (Vargas, 2004). This acknowledgement began a growing career of visibility and impact of the journal, thanks to its inclusion in internationally recognized databases, such as Scopus (Elsevier, fluctuating between Q4 and Q3 from 2008 to date), SciELO Citation Index (Clarivate Analytics), PsycINFO (American Psychological Association), Psycodoc (Official College of Psychologists of Madrid, Spain), DOAJ (University of Lund, Sweden), Redalyc (Autonomous University of the State of Mexico), Dialnet (University of La Rioja, Spain), CLASS (National Autonomous University of Mexico) and LILACS (BIREME, Brazil), among others.

The early indexing of the journal had four consequences that were appreciated in 2005 and 2006: (a) the sequence of thematic issues was stopped to give way to regular issues consisting of articles submitted independently (see issue 14 of 2005); (b) more than ten articles were published per issue (previous typical issues contained seven articles); (c) the publication in Portuguese was initiated (Sebastiani & Maia, 2006), which reinforced the submission of articles in that language, especially from Brazil; and (d) there were remarkable changes in the format (ISO international standard, letter size, uniform color, among other details) and the sequence, which went from an annual volume to two issues per volume since 2006.

In 2008, after its first decade, *Acta* began publishing reviews of bibliographic novelties in the style of other consolidated journals, such as the *Revista Latinoamericana de Psicología*, the *Revista Interamericana de Psicología* or *Psicothema*. The first review was about the book *Neuroscience, violence and justice system*, by Feggy Ostrosky-Solís, prepared by Dr. Luz Anyela Morales Quintero, member of the Scientific Committee and current professor of the *Benemérita Universidad Autónoma de Puebla* (Morales Quintero, 2008). From that moment, Dr. Morales is responsible for the coordination and selection process of such reviews. Additionally, another important novelty of that same year was the inclusion of abstracts and keywords in Portuguese, in order to facilitate the visibility and impact of the journal in the Portuguese-speaking world.

By 2012, when *Acta* reached 15 years of age, the journal had already surpassed its original institutional and national character, and it became a fully international publication. An unequivocal sign of that characteristic was that none of its fifteen articles had authors from the Catholic University of Colombia, but were proposed from institutions in Portugal, Spain, Mexico, Chile and Argentina, as well as others from

Colombia. This contrasted significantly with the first issue of the journal (1998), which included four local articles of the institution, an article from another national institution and a closing article by a Peruvian author. Likewise, the journal's team diversified with the addition of new positions, committees and foreign members, although it always kept the continuity required by any successful scientific journal:

- Director: Carlos Vargas Ordóñez.
- Editor: Ernesto Ravelo Contreras.
- Editorial Director: Stella Valbuena García.
- Editorial Committee: Luis Flórez Alarcón, Eulalia María Chaves, María del Rocío Hernández Pozo, Francisco J. Labrador Encinas, Héctor Martínez Sánchez, Ricardo Pellón and Andrés M. Pérez-Acosta.
- Editorial Board: Delcy Elena Cáceres, Leonidas Castro Camacho, Alba Lucía Meneses Báez, Beatriz Molano García, Rosalía Montealegre Hurtado, Maritza Montero, Carlos Pardo Adames and Ricardo Werner Sebastiani.
- Scientific Committee: Rubén Ardila, Alfredo Ardila, Eric García-López, Luz Anyela Morales Quintero, Alba E. Mustaca, José I. Navarro Guzmán, César Rey Anacona, Wanda Rodríguez Arocho, Andrés Santamaría Santigosa and Stefano Vinaccia.

In 2013, *Acta* took another important step in its visibility: it began publishing articles with the DOI (Digital Object Identifier) code, which facilitates the individual placement of articles in the journal's electronic portal. Likewise, in 2016 the editorial policy of publishing papers in English joined the DOI, in addition to doing it in the original language of the article (Ravelo, 2017).

In this way, the journal joined a successful set of titles that, thanks to their visibility and impact, made Colombia a Mecca for Ibero-American authors in the area (Gutiérrez, Pérez-Acosta & Plata-Caviedes, 2009), especially since, in the last 10 years, the pioneering *Revista Latinoamericana de Psicología* was definitively accompanied by other influential national titles, such as *Universitas Psychologica*, *Avances en Psicología Latinoamericana*, *Suma Psicológica*, *International Journal of Psychological Research*, *Diversitas: Perspectivas en Psicología*, *Revista Colombiana de Psicología*, *Psicología desde el Caribe*, *Revista CES Psicología*, y *Psychologia: Avances de la Disciplina*, among others (Ardila & Pérez-Acosta, 2010).

Bibliometric analysis

The bibliometric analysis is the quantitative study of the bibliographic material with which it is possible to make a classification of articles, authors and journals in order to provide an overview of a given field of research (Merigo, Pedrycz, Weber & de la Sotta, 2018) and contribute to

the scientific community by reporting on complementary contributions in the various areas in which this type of analysis is applied (Gorbea Portal, 2016). In this sense, research in the field of bibliometrics has been an important vehicle for the analysis of scientific information in a wide variety of disciplinary fields, as has happened in the domain of literature (Tsay & Li, 2017), medicine (Sweileh, 2017; Sweileh, Al-Jabi, Sawalha, AbuTaha & Zyoud, 2016) and social work (Ho, 2014), among other areas of study.

Carrying out a bibliometric study allows using and applying mathematical-statistical elements to a specific field of science, which facilitates the organization of bibliometrics in different categories, such as the productivity of journals, their impact on the scientific community, collaborations between scientists or institutions and their distribution among different databases (Bordons & Zulueta, 1999, Pritchard, 1969, Spinak, 1998). In this way, bibliometrics is a crucial tool when developing a practical systematization of knowledge production.

Specifically, the activity indicators of this type of analysis include: the number and distribution of publications, productivity, dispersion of publications, collaboration in publications, average life of the citation -or aging-, and connections among authors. These indicators facilitate the visualization of the current situation of science, and in the case of impact indicators, serve to estimate the relevance of authors, works or journals (Camps, 2008).

METHOD

Type of study

This work performed a descriptive bibliometric study from the analysis of articles published by a scientific journal (Montero & León, 2007). Specifically, this analysis reveals a series of indicators, which include, for example, the total number of articles, the gender of the authors, the language of the publication, the productivity indicators (Lotka), the indexes of collaboration (Subramanyam and Lawani), the country of affiliation, the thematic areas and the methodologies implemented.

Study universe

A total of 455 documents published in *Acta*, passed through a filter, whereby all papers that were not properly classified as scientific articles were excluded. In accordance with this exclusion criterion, the documents labeled as editorials, institutional information, presentations, reports and reviews were omitted, so that the analysis was finally

made with a total of 388 articles registered between 1998 and 2017.

Instruments

For organizing the database to be analyzed, a spreadsheet was created in Excel that was fed with all the documents of the journal, where the filter described above was applied. This database was created with information from the journal's official website: (http://editorial.ucatolica.edu.co/ojsucatolica/revistas_ucatolica/index.php/acta-colombiana-psicología/).

Procedure

Initially, the variables to be analyzed were identified and, based on the information provided by each scientific article, the data were collected in order to construct the Excel database with which the information analysis process was carried out.

Data analysis

Once the database was completed, the processing and data analysis was performed using the same Excel spreadsheet, supplemented with the IBM SPSS Statistics package, version 23. Specifically, the analysis of the Lotka Law was carried out (Urbizagástegui, 2005) with the Excel program; calculations of frequencies and percentages were made by means of the SPSS package (Ravelo et al., 2016), and then the corresponding tables and figures were elaborated. It is important to highlight that some analyzes were carried out around five-year periods (1998-2002, 2003-2007, 2008-2012 and 2013-2017), while others, such as collaboration between countries, were analyzed by decades (1998-2007 and 2008 -2017).

RESULTS

Productivity

In general, the journal published a total of 388 scientific articles, in which a higher percentage of women were found in the first authorship (52%). Nevertheless, when considering the totality of the authors, this relationship is inverted, being the men the ones who show this percentage. Likewise, of all the articles, more than two thirds are indexed in Scopus (see Table 1), which indicates an important factor in the journal's visibility worldwide. Similarly, it should be noted that although the data show a smaller number of articles written in English, the journal has made the effort to translate into that language all the articles that

have been originally sent in Spanish or Portuguese. This reflects a fundamental change in the editorial policy that will generate significant improvements in the impact and the citation of the articles (Di Bitteti & Ferreras, 2017), added to the perception of the researchers that their work will be recognized and rewarded (López-Navarro, Moreno, Quintanilla & Rey-Rocha, 2015).

Table 1
Descriptive statistics of articles published in Acta (1998-2017)

Category of analysis	Total	Men	Women
Articles			
N	388	186 (48 %)	202 (52 %)
Authors	718	377 (52 %)	346 (48 %)
Indexation			
Scopus	264 (68 %)		
No Scopus	124 (32 %)		
Language			
Spanish	345 (89 %)		
English	22 (6 %)		
Portuguese	21 (5 %)		

On the other hand, with respect to the contrast of the Lotka's Law on the scientific productivity of the authors who published in *Acta*, the model of least squares was used in the analysis (Urbizagástegui, 2005). And in order to contrast the empirical or observed production with the theoretical or expected production, only the main authors (first author) were taken into account and the amount of contributions was estimated, which was supported by a first theoretical proposal (Lotka, 1926).

In Table 2, the observed frequency indicates the number of main authors, whereas the contributions by author point to the number of publications, which makes evident that 253 main authors published a single scientific article, while 37 main authors published two papers, etc. Likewise, the maximum value observed with respect to the publication of articles by author occurred in the case in which an author contributed with eight articles published by the journal. As noted, the calculation of the expected or theoretical frequency was performed according to the least squares model, and, in Table 2, the expected frequency indicates a number of main authors, which is interpreted as follows: 247 authors would be expected to have published one paper in *Acta*, 35 authors would have published two papers, and 11 would have published three, and so on, up to the last value, which indicates that an author would be expected to have published eight papers—a value also suggested by the Lotka's Law.

The next step was to establish if there are differences between the expected frequency and the observed frequency; considering a significance level of .01, a critical value (.0828) was obtained and the maximum deviation (MaxD) was estimated. By way of interpretation, if the critical value is greater than the MaxD, it is accepted that the observed frequency is adjusted to the expected frequency; whereas, if the critical value is lower than the MaxD, the assumption that the observed frequency is adjusted to the expected frequency is rejected. As a result, it is observed (see Table 2) that the critical value is greater than all the values of the MaxD, which leads to assert that there is correspondence between the observed scientific production and the expected scientific production in *Acta*, and therefore, Lotka's Law is fulfilled (see Figure 1). With respect to these data, it is important to clarify that, based on the journal's policies, an author can only publish one single article per year.

Table 2
Differences between the observed frequencies and the theoretical frequencies

Contributions per author	Observed frequency	Expected frequency	Dmax
1	253	247	.0184*
2	37	35	.0265*
3	9	11	.0202*
4	4	5	.0175*
5	2	3	.0157*
6	0	2	.0107*
7	0	1	.0075*
8	1	1	.0085*
Total	306	303	

Note: MaxD= Maximum difference. * Statistically significant. Critical value = .0828

Collaboration

Table 3 shows the number of authors, distributed according to the number of authors per five-year period. The first evidence detected is that the papers with a single author have decreased from the first to the last five-year period, going from 60% of papers done by an author to only 12% in the last period, which suggests that the collaboration has become an indispensable aspect in the current era.

Now, with respect to the Lawani and Subramanyam indexes -which measure collaboration- it is possible to mention that both have been increasing in a curve of constant augmentation. Specifically, the Lawani index (1981) provides the average weight of the number of authors per article. Here, the value for the journal was 2.58, although in the last period it was 3.1 and everything indicates that this value will

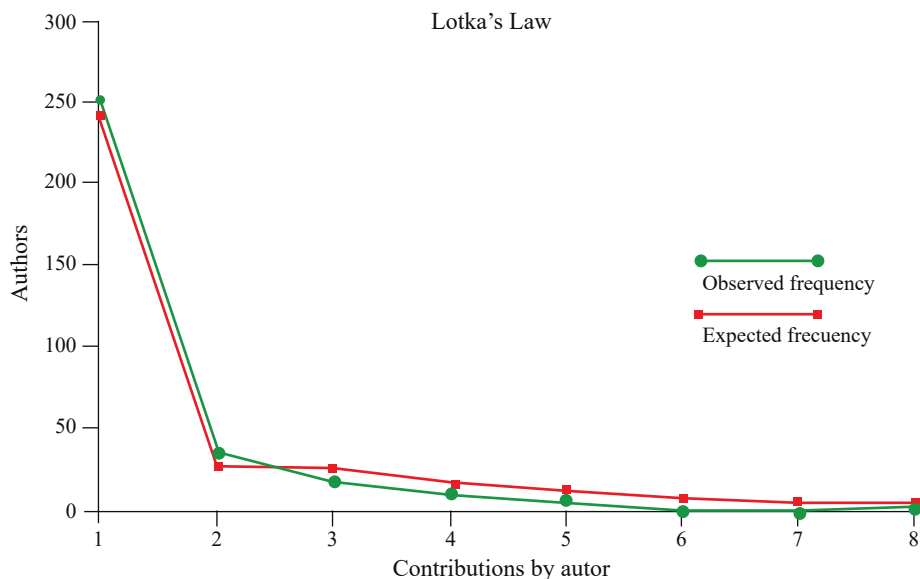


Figure 1. Lotka's Law in Acta's publications (1998-2017).

continue to increase. For its part, the Subramanyam index (1983) -that studies the degree of collaboration- determines that values closer to 1 denote a strong proportion of multiple authorship and, in this case, it shows that the proportion of articles with multiple authorship for the journal is .76, although, in the same way, the results per quinquennium are of .88 for the last period.

On the other hand, collaboration between countries was also analyzed, although this variable was studied over the course of a decade to another. Figure 3a shows the connections for the 1998-2007 decade and, in Figure 3b, those for the 2008-2017 decade. By making a mapping of Figures 3a and 3b, it is possible to clearly observe the large number of differences between these two periods. In the first decade, incipient links were observed, where the first collaborative

work took place between Colombia and Spain, between Colombia and Germany, between Spain and Chile, and finally there was collaboration between Mexico and the United Kingdom. As can be seen, the relationships were scarce and therefore very easy to identify, but, in contrast, in the second decade the change is radical, since, even if in terms of collaboration the work carried out between Colombia and Spain is maintained in the first place, the large number of articles with at least some affiliation from Mexico means that this country is the second one to develop an important collaboration with Colombia; nevertheless, the Mexican networks also extend to Cuba, the United States, Spain and Brazil. Likewise, the contributions of Mexico also display an important internal collaboration, although

Table 3

Number of articles distributed according to the number of authors per five-year periods

Number of authors	Period				Total
	1998-2002	2003-2007	2008-2012	2013-2017	
1	31 (60 %)	25 (29 %)	21 (17 %)	16 (12 %)	93
2	12 (23 %)	36 (42 %)	46 (38 %)	34 (27 %)	128
3	7 (13 %)	6 (7 %)	36 (29 %)	33 (26 %)	82
> 3	2 (4 %)	19 (22 %)	19 (16 %)	45 (35 %)	85
Total	52	86	122	128	388

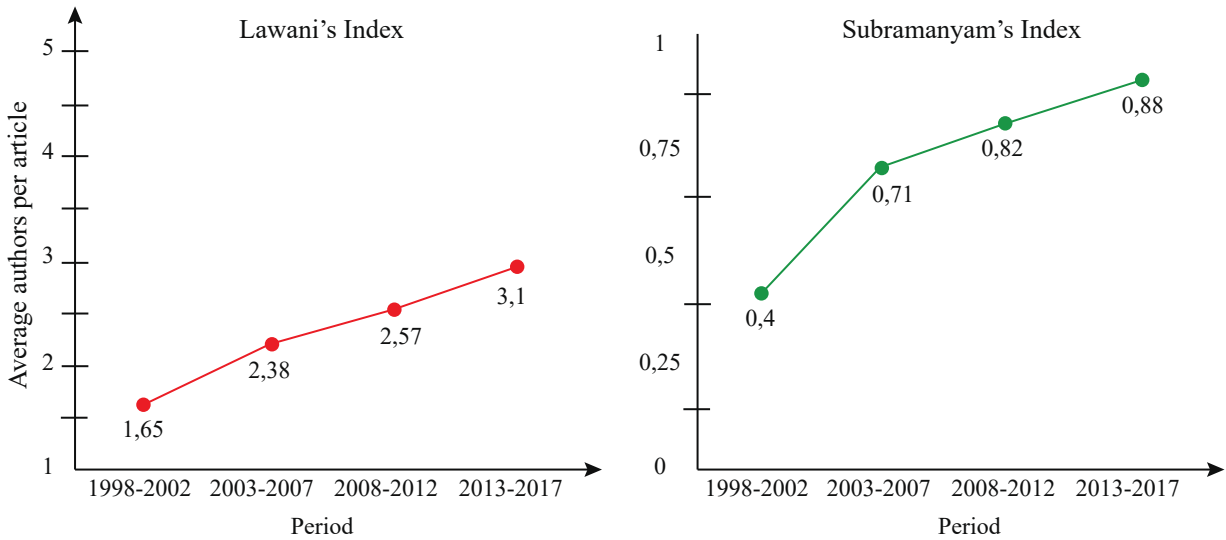


Figure 2. Lawani Index and Subramanyam Index. On the one hand, the Lawani index indicates the average of authors that sign an article -their minimum value is 1 and there is no maximum value for this index-; and, on the other hand, the Subramanyam index indicates the proportion of articles with multiple authorship, where a value between 0 and 1 can be obtained-values close to 1 indicate that the articles published have at least two authors-.

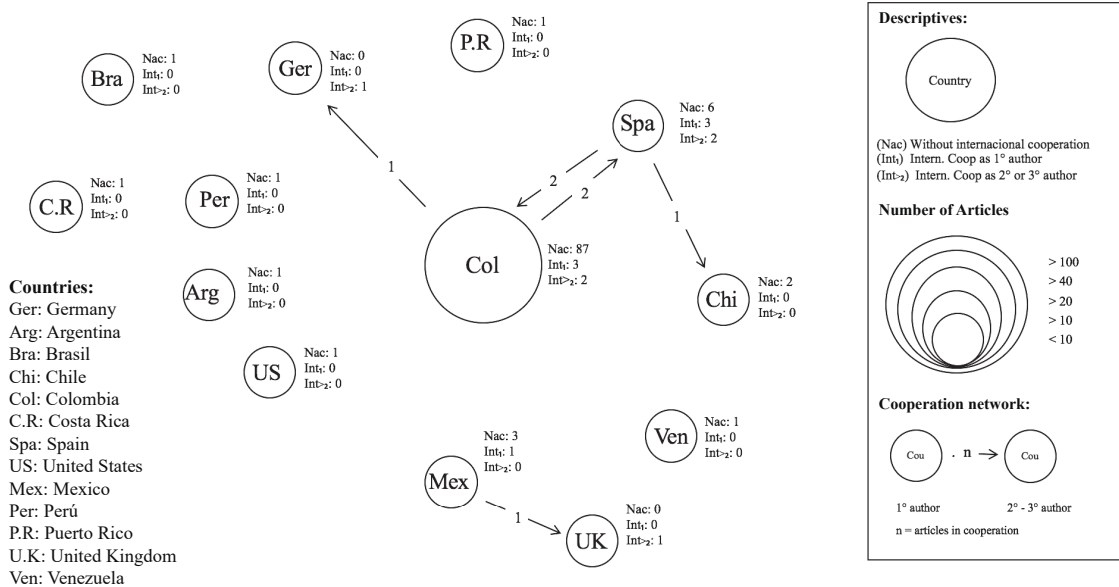


Figure 3a. Map of collaboration between countries based on articles published from 1998 to 2007.

this was not studied in detail due to the large number of participating institutions.

Research topics and methodologies

The research topics and methodologies are analyzed in terms of frequency and percentage in each of the four five-year periods included. In terms of general results, as

stated in the previous study by Ravelo et al. (2016), the area of clinical and health psychology presents the largest amount of papers, followed by educational psychology, psychometrics and social-community psychology. On the other hand, the same situation occurs with the predominance of studies carried out with quantitative methodology (Ravelo et al., 2016), which far surpasses the theoretical papers and qualitative methodologies - works that include

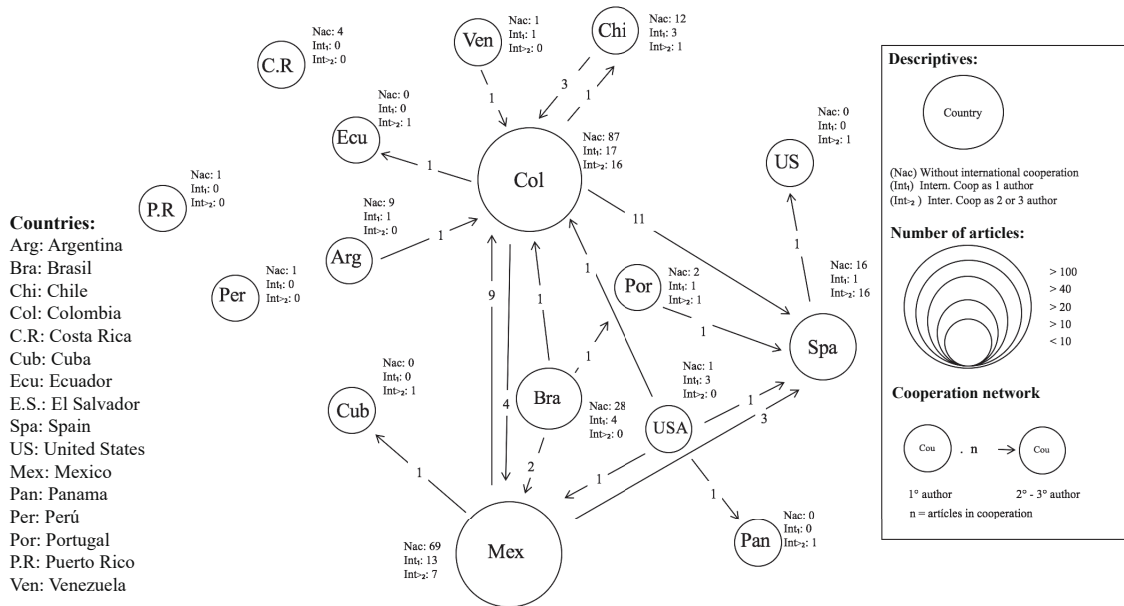


Figure 3b. Map of collaboration between countries based on articles published from 2008 to 2017.

mixed methodologies are scarce in the trajectory of the journal - . Additionally, as can be seen (see Table 4), it is important to mention that, in the last five-year period, precisely the papers in clinical and health psychology and the quantitative methodologies also exceeded the general value, which shows that these trends are not only a historical development, but they are also a current one .

DISCUSSION

As demonstrated throughout this article, the contributions of *Acta Colombiana de Psicología* are undeniable and very prominent today in the Latin American psychological science. Currently, the journal has risen to the Q3 category in Scopus and has the challenge of continuing to advance along the same route. Here, it is important to note that the

Table 4
 Research topics and methodologies by five-year periods

Criterion	Period				Total
	1998-2002	2003-2007	2008-2012	2013-2017	
<i>Thematic area</i>					
Educational psychology	15 (29 %)	11 (13 %)	25 (20 %)	20 (15 %)	71 (18 %)
Clinical and health psychology	14 (27 %)	25 (29 %)	34 (28 %)	42 (33 %)	115 (30 %)
Experimental psychology	8 (15 %)	4 (5 %)	4 (3 %)	6 (5 %)	22 (6 %)
Neuropsychology	2 (4 %)	8 (9 %)	10 (8 %)	11 (9 %)	31 (8 %)
Psicometrics	7 (13 %)	8 (9 %)	14 (12 %)	25 (19 %)	54 (14 %)
Legal psychology	6 (12 %)	0 (0 %)	2 (2 %)	1 (1 %)	9 (2 %)
Organizational Psychology	0 (0 %)	10 (12 %)	11 (9 %)	6 (5 %)	27 (7 %)
Social-Community psychology	0 (0 %)	15 (17 %)	17 (14 %)	9 (7 %)	41 (10 %)
Bibliometrics	0 (0 %)	3 (4 %)	1 (1 %)	3 (2 %)	7 (2 %)
Others areas	0 (0 %)	2 (2 %)	4 (3 %)	5 (4 %)	11 (3 %)
<i>Methodology</i>					
Quantitative	30 (58 %)	48 (56 %)	88 (72 %)	109 (85 %)	275 (71 %)
Qualitative	3 (6 %)	16 (19 %)	12 (10 %)	9 (7 %)	40 (10 %)
Theoretical	18 (34 %)	19 (22 %)	20 (16 %)	3 (2 %)	60 (16 %)
Mixed	1 (2 %)	3 (3 %)	2 (2 %)	7 (6 %)	13 (3 %)
Total	52	86	122	128	388

various editorial processes, as well as the support of the authorities of the journal and the university, have favored such changes effectively.

As already mentioned, since 2016 all the articles are entirely written in English (when the original version is Spanish or Portuguese). Also, there has been a quick and efficient management in the process of peer evaluation -according to the parameters of the American Psychological Association- and, finally, the open access policy has allowed a greater diffusion of the journal in diverse sectors of the scientific community.

On the other hand, it is worth mentioning that for future studies it is suggested to analyze the various citation indicators - some data can be visualized in the portal SCImago Journal and Country Rank (SCImago, 2018). Therefore, among the goals of the journal is to maintain and increase internationalization, an aspect that will undoubtedly be optimized in the next five years. Also, the indexation to the *Web of Science* is and will be the natural goal in this time of consolidation of *Acta*; and, if this indexation is achieved, it will be possible to access the publication of articles from other corners of the world, such as from European (non-Spanish-speaking) countries and from Oceania, Asia and Africa, at the same time as the publication of papers coming from North America, which generates the opening of new fields and scenarios of production.

Furthermore, there is no doubt that advances in national or international collaboration will enhance the citation of the journal. The results show that these two variables are closely related, that is to say, a growing collaborative activity is associated with a greater impact on citations (Bornmann, 2017). In this regard, when surveying from Scopus -dated 26 March, 2018- the ten most cited articles of the journal (see Annex) it can be glimpsed that eight of them are papers developed in collaboration between two or more authors, and that the most cited article (16 citations) is prepared by a team composed of four authors (Contreras, Esguerra, Espinoza & Gómez, 2007).

Finally, it is important to highlight that the editorial work does not culminate in any case with the publication of scientific articles, but it must also consider a new beginning of the research process (Polanco-Carrasco, 2015) or, rather, a stage that strongly requires the dissemination of published science and its contents. Nowadays, in addition to the classic and most recognized databases of science (Scopus and Web of Science), it is important to highlight platforms such as Academia.edu, Research Gate, Google Scholar, Orcid, Mendeley, and others that generate greater visibility of authors and journals in current science (Orduña-Malea, Martín-Martín & Delgado-López-Cozar, 2016). For this reason, it becomes the task of *Acta's* Editorial Committee

to encourage researchers to upload their articles to these platforms and, therefore, to continue developing policies according to the time we live, as has been done since the inception of this prestigious journal.

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ANNEX

Most cited articles in Acta Colombiana de Psicología (1998-2017)

Coping styles and quality of life in patients with chronic renal failure (CRF) in hemodialysis treatment.	Contreras, Esguerra, Espinosa & Gómez (2007).	16
Colombian Validation of the International System of Affective Images: Evidences of the transcultural origin of emotion.	Gantivia, Guerra & Vila (2011).	13
Validation of the Body Shape Questionnaire (Questionnaire of the Body Figure) BSQ for the Colombian population.	Castrillón Moreno, Luna Montaña, Avendaño Prieto & Pérez-Acosta (2007).	13
Beliefs and environmental behaviors, economic liberalism and happiness	Moyano-Díaz, Cornejo & Gallardo (2011).	11
Optimism and positive health as predictors of adaptation to university life.	Londoño (2009).	11
Assertiveness, resistance to group pressure and alcohol consumption in university students	Londoño Pérez & Valencia Lara (2008).	10
General overview of academic production in Colombian psychology indexed in psicoredalyc, 2005-2007	López, Silva, García-Cepero, Aguilar-Bustamante & Aguado (2010).	9
Burnout: Burning at work syndrome (SQT)	Quiceno & Vinaccia (2007).	9
Academic performance of university students in relation to school anxiety and self-evaluation	Hernández-Pozo, Coronado Alvarez, Araújo Contreras & Cerezo Reséndiz (2008).	8
Pro-social skills, gender personality traits and acceptance of violence against women in adolescents who have witnessed violence between their parents.	Rey (2008).	8
