8 Variation in Scholarly Titling and Abstract Writing Practices over Time: The Case of the *Journal of Experimental Medicine*

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Abstract / Resumen

This chapter examines the prevalent rhetorical practices of a specific sub-disciplinary community and how these practices have evolved over time. To this purpose, we have analysed the communicative functions of 180 research article (RA) titles and abstracts, published in the *Journal of Experimental Medicine*, over a period of nine decades (1940-2022). The findings revealed that both sets of RA titles and abstracts have increasingly become more promotional in terms of the persuasive rhetorical strategies that the authors use to enhance the contribution of their research. This is evidenced by the fact that the content information of the titles in the early decades mainly focuses on the description of the research topic and the methods of the study, whereas in the recent decades the titles also tend to report the main results and conclusions, including the use of promotional lexical items such as "important", "essential" or "novel role". Similarly, a genre-based analysis of the abstracts showed that the texts in more recent decades present a growing number of promotional communicative elements, mainly rhetorical moves/steps that claim the importance of the research topic and state the implications or significance of research.

Este capítulo examina las prácticas retóricas predominantes en una subdisciplina específica y cómo estas prácticas han evolucionado a lo largo del tiempo. Para ello, hemos analizado las funciones comunicativas de 180 títulos y resúmenes de artículos de investigación, publicados en *Journal of Experimental Medicine*, durante un período de nueve décadas (1940-2022). Los resultados revelaron que tanto los títulos como los resúmenes se han

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> vuelto cada vez más promocionales en términos de las estrategias retóricas persuasivas que los autores utilizan para resaltar la contribución de su investigación. Esto se constata en el hecho de que la información de contenido de los títulos en las primeras décadas se centra principalmente en la descripción del tema de investigación y los métodos del estudio, mientras que en las décadas recientes los títulos también tienden a informar sobre los principales resultados y conclusiones, incluyendo el uso de elementos léxicos promocionales como «importante,» esencial,» o «papel novedoso.» De igual forma, un enfoque de género para el análisis de los resúmenes mostró que los textos de las últimas décadas presentan un número creciente de elementos comunicativos promocionales, principalmente movimientos/pasos retóricos que reivindican la importancia del tema de investigación y enuncian las implicaciones o relevancia de la investigación.

Research communities are constructed on the basis of a series of values and conventions which are reflected in their prevalent practices, and these academic practices may vary from the ones that were predominant in different social and cultural contexts of previous periods of time (Bazerman, 1988; Berkenkotter & Huckin, 1995; Hyland & Jiang, 2024). We can thus assume that the prevalent writing practices of specific (sub)disciplinary communities can change over time and that these will be displayed in the academic genres that their members construct. In today's increasingly competitive research context, it is very common to find that scholars continuously strive to publish their research in high-impact English-medium journals (Lillis & Curry, 2010; Flowerdew, 2022), and this pressure may well be reflected in the type of persuasive rhetorical strategies that they use in academic writing, including research article (RA) titles and abstracts, to achieve this goal.

RA titles play a critical role in the scientific-academic context, as they constitute the first encounter with the readership. RA titles thus fulfil a main informative function since an effective title describes accurately the topic or content of the associated paper to assist scholars with online database searches and to help readers make rapid decisions about whether the paper deserves further attention (Hartley, 2005; Salager-Meyer & Alcaraz-Ariza, 2013; Hyland & Zou, 2022). RA titles also have a persuasive function as not only do authors attempt to attract readers' interest and draw them to read the whole paper and cite it, but they also seek to make a positive initial impression on the editors and to influence their decisions about sending the paper for reviewing and, eventually considering it for publication in the target journal.

As regards RA abstracts, their main function is similarly informative as they provide a summary of the content of the associated paper, indicating to readers whether the full text merits their further attention. This is why they are considered "time saving-devices" (Salager-Meyer, 1990, p. 367) since the abstract is the only part of the article that busy researchers typically read. An effective abstract accurately reflects, in a condensed form, the macrostructural components of the accompanying paper, mainly the IMRD pattern (Swales, 1990, 2004). RA abstracts also have a persuasive function as they attempt to attract readers' attention in order to increase the possibilities of citations. After the paper's title, they constitute the first encounter with the text and, therefore, it is here that writers have to convince their peers (especially editors and reviewers) that they have mastered the rhetorical conventions which are expected by the members of their disciplinary community to qualify for membership in the group.

Due to the stated relevance of journal article titles, it is not surprising that extensive title research has been conducted from a synchronic perspective (e.g., Goodman et al., 2001; Yitzhaki, 2002; Hartley, 2005; Wang & Bai, 2007; Soler, 2007; Swales & Feak, 2012; Nagano, 2015; Hyland & Zou, 2022) and across a wide range of disciplines, such as computer science (Anthony, 2001), literature, linguistics and science (Haggan, 2004), applied linguistics (Cheng et al., 2012), astrophysics (Méndez et al., 2014), economics (Gnewuch & Wohlrabe, 2017), and clinical medicine (Kerans et al., 2020). The findings of this bulk of research have revealed that the inherent specificities of (sub) disciplines imprint differences on the structural construction of titles. Soler (2007), for instance, found that biological science titles are generally longer than social science titles, reflect a higher incidence of nominal groups and frequently present full-sentence title constructions which appear as a generic peculiarity of this discipline.

Likewise, the rhetorical structure of RA abstracts has been examined extensively from a synchronic perspective, revealing the prevalent and optional moves and their lower level constituents (sub-moves of steps) across a large variety of (sub)disciplines such as applied linguistics (dos Santos, 1996; Pho, 2008), literature (Tankó, 2017), medicine (Salager-Meyer, 1990; Anderson & Maclean, 1997) or psychology (Hartley, 2003; Martín, 2003). Conversely, the studies in the field of medicine that have taken a diachronic approach are a limited few. Vinkers et al. (2015), for instance, reported a growing increase in the frequency of lexical items with a positive connotation (e.g., "novel", "innovative") in a corpus of PubMed abstracts between 1974 and 2014. However, to our knowledge, no previous diachronic study on RA abstracts has taken a genre-based approach to the analysis of this type of texts. Such an approach

may help us understand how the communicative functions of this academic genre have evolved over time.

Diachronic studies that focus on the analysis of linguistic features of medical RA titles are also very scarce. Jaime Sisó (2009), for example, examined the information content of RA titles published between 1980 and 2006 in the subfield of molecular biology, finding from the beginning of the 1990s onwards a progressive rise of titles which present the most relevant and conclusive information (i.e., full-sentence titles), using the smallest number of words. She also found variation across journals in the frequency with which they anticipate the results and/or conclusions of the study: whereas in the top journal *Cell* the frequency of this practice in 2006 was 78%, in *Neurochemical Research*, it only reached 16.6%, and this practice was rarely found in journals ranked low. This suggests that rhetorical choices (i.e., strategic positioning) may also vary depending on the impact factor of the journal. Therefore, in order to elucidate the prevalent rhetorical practices of a specific sub-disciplinary community, it is necessary to analyse rhetorical features in particular target journals. A diachronic perspective can also offer insights into the changes in values and writing practices of research communities over time.

In this study, we take a diachronic perspective to examine the information content and communicative functions of RA titles and abstracts published in the *Journal of Experimental Medicine* (JEM) and how the related rhetorical practices of the sub-disciplinary community of scholars have evolved over the period from 1940 to 2022. A single journal was chosen to exclude the possible influence of other variables, such as different policies of editorial boards, scope and ranking of journals, on variation in writing practices. The questions thus raised are whether the types and frequency of occurrence of the information elements of titles and the communicative functions (moves/steps) of abstracts undergo variation over the period of nine decades analysed.

Methodology

The corpus consists of 180 RAs, written in English, along with their corresponding titles and abstracts randomly selected over a period of nine decades (1940-2022) from the *Journal of Experimental Medicine* (JEM). The articles labelled as "insights", "viewpoints", "reviews" and "brief reports" were excluded. In order to have a representative selection of the nine decades, 20 RAs were randomly drawn from each decade: two articles from the first issue of each year, except for the last decade in which

we selected five articles from the first issues of the year 2020, another five from 2021 and 10 from the most recent year (2022). The decision to compile the corpus from a single journal, as stated above, was to eliminate factors that could contribute to possible rhetorical variation across the papers published in journals of the same sub-discipline due to different policies of editorial boards of specific journals, such as explicit instructions for writing the submitted titles and abstracts in the guidelines for authors. Other factors that make it difficult to compare across different journals are the broad/narrow scope of the journals, the specialised/generalised nature of the journal's readership and/or certain specificities of long-established versus emergent journals, as reported in previous research (see, for example, Anthony, 2001; Jaime Sisó, 2009; Martín & León Pérez, 2017; Hyland & Zou, 2022).

JEM is a high-impact open access journal with a long trajectory published by Rockefeller University Press. Since its inception in 1896 it has been regularly publishing studies in experimental medical biology (see JEM metrics in https://rupress.org/jem/pages/journal-metrics). The most recent JEM guidelines for authors only state that titles should be less than 100 characters (including spaces) and should be made accessible to a general readership. As regards abstracts, the guidelines admonish authors not to exceed 160 words. They also state that abstracts "should describe the relevant background, key results, and conceptual significance of the findings in a way that is accessible to a broad audience" (https://rupress.org/jem/pages/submission-guidelines). The information on the submission guidelines of earlier decades was not available.

With the aim of categorising the information content of the selected titles, in an initial stage of the study, we examined our corpus following a framework (see Table 8.1) adapted from Goodman et al. (2001), as this was considered an adequate taxonomy for our purpose. The information types include topic only, topic + method, topic + result, topic + conclusion, and other more complex structures such as topic + result + method (T+R+M), and topic + result + conclusion (T+R+C).

Table 8.1. Framework of Information Types in RA Titles *

Categories	Description and Example (Information elements other than topic are highlighted in bold font)
Topic only	Title indicates a subject but does not include information on other categories listed below, or it seems ambiguous. The description of the subject can be general or focused (more detailed). "The effect of high pressures on hemagglutinating antibodies"

Table 8.1, continued	
Topic + Method	Title specifies the topic and an approach to study type and/or methodological procedure, design, data management, or analysis (such as case-control, cohort, efficacy, incidence, mortality, prevalence, trend, or validity study; meta-analysis; randomized clinical trial); or title provides an incomplete description of a method (such as assessment, evaluation, population sample, or comparison). "Observations **by electron microscopy** on contraction of skeletal myofibrils induced with adenosinetriphosphate"
Topic + Result	Title contains the topic and quantitative information (a specific value), semiquantitative or ordinal information (such as increased, decreased, high or low), or some other specification of a relation (such as association, change, correlation, determinants, effects, evidence, impact, influence, outcomes, predictors, relation, risk, variability, or variation) about the findings. "Delta-secretase (AEP) **mediates tau-splicing imbalance and accelerates cognitive decline in tauopathies**"
Topic + Conclusion	Title includes the topic and an unequivocal statement based on the analysis of the reported evidence such as interpretation of results, the implications of the study or the overall conclusion. "Phospholipase Cγ1 **is essential for T cell development, activation, and tolerance**"
T + R + M	A more complex structure that comprises information on the topic, results and the method. "Suppressible and nonsuppressible autocrine mast cell tumors **are distinguished by insertion of an endogenous retroviral element (IAP) into the interleukin 3 gene**"
T + R + C	A further complex structure the contains information on the topic, the results and a statement of conclusion. "IL-23 **stimulates epidermal hyperplasia via TNF and IL-20R2–dependent mechanisms with implications for psoriasis pathogenesis**"

* *Adapted from Goodman et al., 2001, p. 76*

Regarding the procedure that we followed for the analysis of the sample abstracts, in an initial stage of the study, we examined the corpus of texts in terms of the possible rhetorical strategies that writers have at their disposal to fulfil specific communicative functions. We adopted a genre-analytical approach following the work by Swales (2004), in which he defines the concept of move as a "rhetorical unit that performs a coherent communicative function in a written or spoken discourse" (p. 228). In his analytical framework, the rhetorical moves manifest themselves as text units that occur in typical sequences, and these can be realised by means of lower level constituents (sub-moves or steps) which, depending on the frequency of occurrence,

can be considered obligatory or optional. Our preliminary move-step analysis revealed the scheme which is displayed in Figure 8.1.

In the second stage of the study, each co-analyst (the two authors of this chapter) independently segmented the texts and manually annotated the specific information elements of the titles (applying the framework in Table 8.1) and the discourse functions of the abstracts (applying the framework in Fig. 8.1).

Move 1. Introducing the study within its field
- Step 1. Claiming importance of the research topic
- Step 2. Providing background information
- Step 3. Indicating a gap in existing knowledge

Move 2. Announcing the aim of the research (purposively or/and descriptively)
Move 3. Describing the research methodology
Move 4. Reporting key results
Move 5. Discussing the main findings
- Step 1. Interpreting or explaining results
- Step 2. Drawing conclusions from results
- Step 3. Stating the significance or contribution of the research findings

Figure 8.1. Framework Proposal for the Analysis of RA Abstracts in Medical Biology

To validate the findings, we contrasted the results. A high level of inter-coder agreement on information type (89%) and on move-step structure (97% for moves and 91% for steps) was initially achieved, and complete agreement was reached after discussion. Finally, we undertook a quantitative analysis of the types of information elements and frequency of occurrence of the titles. We also quantified the types and frequency of occurrence of moves and steps in the abstracts.

Results

In this section, we report the findings obtained from the diachronic analysis of the types of information elements that the titles contain, their frequency of occurrence over the nine decades, and the distribution and frequency of use of the moves/steps in the abstracts analysed.

The Analysis of the Titles

The results obtained from the diachronic analysis of the types of information elements and frequency of occurrence in the titles that comprise the corpus are displayed in Table 8.2.

Table 8.2. Distribution and Frequency of Occurrence of Titles by Information Categories

No. Titles (%) – 20 per decade – 180 in total					
Category	1940s	1950s	1960s	1970s	1980s
Topic only	17 (85)	16 (80)	17 (85)	14 (70)	10 (50)
T+M	3 (15)	4 (20)	3 (15)	4 (20)	8 (40)
T+R	0	0	0	2 (10)	2 (10)
T+C	0	0	0	0	0
T+R+M	0	0	0	0	0
T+R+C	0	0	0	0	0

Category	1990s	2000s	2010s	2020s
Topic only	3 (15)	0	0	0
T+M	2 (10)	0	0	0
T+R	10 (50)	13 (65)	16 (80)	7 (35)
T+C	2 (10)	4 (20	3 (15)	12 (60)
T+R+M	3 (15)	1 (5)	1 (5)	0
T+R+C	0	2 (10)	0	1 (5)

As shown in Table 8.2, the content information of the titles in the early decades (1940s -1980s) mostly focuses on the indication of the research topic only (examples 1 and 2). To a much lesser extent, titles also include some information about the methods (mainly study type or procedures), as seen in examples 3 and 4, and rarely about the results.

1. Investigations on the occurrences of Rh substances in amniotic fluid. (1945a)
2. The effect of podophyllotoxin on tissue metabolism and enzyme systems. (1949b)
3. Electron microscope study of red cell membranes after experimental infection with the virus of foot-and-mouth disease. (1951b)
4. Conversion of immunity to suppression by in vivo administration of I-A subregion-specific antibodies. (1982a)

We only found two instances of Topic + Results in the 1970s and in the 1980s. However, from the 1990s to the 2010s, the predominant practice was to announce the main results along with the description of the topic (example 5). In the most recent decades, we can also observe the use of more complex information structures, such as T+R+M (example 6) and T+R+C (example 7) and, with a higher frequency of occurrence, information on the research topic

combined with a statement of conclusion (example 8) which reaches its peak in the early 2020s as the authors of more than half of the titles analysed (60%) opted for reporting the main conclusions of the study.

5. A human tumor necrosis factor (TNF) alpha mutant that binds exclusively to the p55 TNF receptor produces toxicity in the baboon. (1994b)
6. Interleukin 15 induces endothelial hyaluronan expression in vitro and promotes activated T cell extravasation through a Cd44-dpendent pathway in vivo. (1999a)
7. IL-23 stimulates epidermal hyperplasia via TNF and IL-20R2-dependent mechanisms with implications for psoriasis pathogenesis. (2006a)
8. Tumor macrophages are pivotal constructors of tumor collagenous matrix. (2016a)

It is worth recalling that the most recent JEM submission guidelines limit title length to 100 characters, including spaces, thus encouraging the use of relatively short titles. They also admonish authors to make the title concise and accessible to a general readership. This could explain that, with the purpose of adhering to the journal instructions and reaching a wider audience, the big amount of detailed information provided by authors, which was prevalent in earlier decades, is being replaced by a tendency to write shorter and clearer titles in which the results or conclusions of the study are highlighted.

We should also note that we found a growing trend, initiated in the 1990s, to include persuasive lexical items to highlight the relevance of research findings. The number of titles in which the authors make use of persuasive attitude markers such as "pivotal", "important", "essential" (example 9), which contribute to enhancing the value of their research for the disciplinary community, was 1 (1990s), 2 (2000s), 3 (2010s) and 3 (2020s). We also found a growing use of lexical items ("novel", "new") that explicitly emphasise the novelty and uniqueness of the research findings (examples 10-12): 3 (1990s), 4 (2000s), 5 (2010s) and 6 (2020s). These findings indicate that, in contrast with the more neutral position towards research publication prevalent in the decades preceding the 1990s, the titles have increasingly become more promotional in terms of the persuasive rhetorical elements that the authors use to highlight the contribution of their research.

9. 1.Down-regulation of Gfi-1 expression by TGF-β is **important** for differentiation of Th17 and CD103+ inducible regulatory T cells. (2009a)
10. Cloning of vascular adhesion protein 1 reveals a **novel** multifunctional adhesion molecule. (1998a)
11. Granulocyte macrophage colony-stimulating factor: A **new** putative therapeutic target in multiple sclerosis. (2001b)

12. CCL17 acts as a **novel** therapeutic target in pathological cardiac hypertrophy and heart failure. (2022e)

This persuasive function can also be observed, as Jaime Sisó (2009) has noted, in the analogy of this type of titles with newspaper headlines in which the main contents of the news are condensed and highlighted with persuasive language in a bid to influence readers and attract their attention. Similarly, in these titles, authors tend to anticipate the novel results and/or conclusions of their articles arguably in an effort to catch the interest of editors and reviewers, inform the busy reader efficiently and promote their research.

The Analysis of the Abstracts

The results of the quantitative analysis of the abstracts are displayed in Table 8.3. As seen in this table, there has been a marked shift in the number of moves/steps from the decades preceding the 1990s until the present decade, making the abstract more rhetorically complex. The basic pattern M3 (methods) + M4 (results) + M5-S1 (interpretation of results) of the early decades (1940s-1980s) was expanded in the 1990s to include M1-S2 (background information) and M2 (purpose), arguably with the aim of reaching a broader audience. Table 8.3 also shows that, over the last three decades, this pattern has evolved to the more complex one that prevails today in which the practice of using three additional promotional steps has become frequent: M1-S1 (claiming importance), M1-S3 (gap creation) and M5-S3 (significance of findings).

Table 8.3 Distribution and Frequency of Occurrence of Moves-Steps in the Abstracts Analysed

No. Abstracts (%) – 20 per decade – 180 in total					
Move/Step	1940s	1950s	1960s	1970s	1980s
M1-S1	0	0	0	0	0
M1-S2	0	0	0	1 (5)	3 (30)
M1-S3	0	0	0	0	0
M2	5 (25)	7 (35)	9 (45)	9 (45)	11 (55)
M3	18 (90)	19 (95)	20(100)	20(100)	20(100)
M4	20(100)	20(100)	20(100)	20(100)	20(100)
M5-S1	12 (60)	11 (55)	10 (50)	14 (70)	17 (85)
M5-S2	1 (5)	2 (10)	5 (25)	6 (30)	5 (25)
M5-S3	0	0	0	0	1 (5)

Move/Step	1990s	2000s	2010s	2020s
M1-S1	5 (25)	11 (55)	12 (60)	12 (60)
M1-S2	12 (60)	15 (75)	16 (80)	14 (70)
M1-S3	5 (25)	8 (40)	13 (65)	14 (70)
M2	19 (95)	12 (60)	8 (40)	13 (65)
M3	20(100)	20(100)	19 (85)	19 (85)
M4	20(100)	20(100)	20(100)	20(100)
M5-S1	17 (85)	13 (65)	9 (45)	7 (35)
M5-S2	9 (45)	5 (25)	3 (15)	6 (30)
M5-S3	3 (15)	8 (40)	11 (55)	14 (70)

Note: In the early decades, abstracts appeared as the final section in the article with the label of "Summary". Starting in the 1990s, they appear in a more prominent position as the first element of the article after the title, before the Introduction of the research articles.

By using M1-S1 (claiming importance), writers highlight the interest of the topic of their study with the main purpose of attracting readers' attention. As illustrated in examples 13 and 14, typical linguistic exponents that contribute to fulfilling this promotional function are positive adjectives expressing subjective judgement (e.g., "interesting", "crucial", "critical", "major", "central", "important", "pivotal", "key", "essential").

13. The identity of allogenic peptide/major histocompatibility complex (MHC) complexes that elicit vigorous T cell responses has remained an **interesting** problem for both practical and theoretical reasons. (1995a)
14. White adipose tissues (WAT) play **crucial** roles in maintaining whole-body energy homeostasis, and their dysfunction can contribute to hepatic insulin resistance and type 2 diabetes mellitus. (2021a)

As shown in Table 8.3, it is only from the 1990s onwards that researchers started to use this step in the introductions of their abstracts. In this decade, we found that 25% of the texts included this communicative function, and over the last three decades it has become a prevalent step since, in more than half of the abstracts, the writers made use of this promotional strategy. It can be argued that, as editorial acceptance of articles is primarily based on the potential interest to the readership, writers tend to exaggerate the importance of the topic to increase the chances of getting published in high-ranked journals.

In M5-S3 (stating the significance or contribution of the research findings), writers highlight the novelty/uniqueness of their results (examples

15 and 16) and the implications of their research for the disciplinary area (example 17). Due to the current competitive context of research production, it was not surprising to find that this practice had increased progressively over the last few decades. As seen in Table 8.3, this step was inexistent in the early decades and we only identified one instance in the last year of the 1980s and three instances in the 1990s. However, in the 2010s and the early 2020s respectively, in more than half (55% and 70%) of the texts examined, the authors chose to highlight the significance of their research as the last step to finalize the abstracts, indicating that this communicative function has become a prevalent step in the target journal analysed.

15. **These data are the first to describe** an animal model with both the humoral and cellular characteristics of PBC. (1995a)
16. These findings reveal **a hitherto unappreciated role for** an IL-10–STAT3–Blimp-1 circuit as an initiator of an inflammatory Th2 response in the lung to allergens. (2020a)
17. These results demonstrate **a novel mechanism** by which IFN-I regulate immunological memory and **provide insights for** rational vaccine design. (2020e)

The genre-based approach to the analysis of the abstracts has thus shown that the texts in the last three decades present a growing number of promotional communicative elements, mainly rhetorical moves/steps that claim the importance of the research topic and state the implications or significance of the research. The change in the position of the abstracts mentioned above also shows how abstracts have evolved over time to become a more promotional genre.

Discussion and Conclusion

This study has contributed to gaining some understanding of the evolution of authors' practices when writing a RA in English in the field of experimental biomedicine. Our analyses have revealed that the titling and abstract writing trends in the target journal (JEM) have evolved over time. Despite the fact that scientific discourse has traditionally been viewed as objective, it seems that academic practices are changing in favour of the use of promotional rhetoric. As seen in this study, both RA titles and abstracts have increasingly become more promotional in terms of the persuasive rhetorical strategies that the authors use to enhance the contribution of their research. In a fashion which seems more appealing to editors, reviewers and readers, the evolution of titles exhibits a clear trend of authors moving from merely announcing the topic and method of their work to highlighting the value of their research by

presenting some of its main eye-catching results and conclusions. Likewise, the simple prevalent pattern of the abstracts in the early decades (methods + results + interpretation of results) has become more complex in the last decades by including promotional moves and steps, mainly M1-S1 (importance of the topic) and M5-S3 (significance of findings), which highlight the relevance of the topic and the implications of research.

The findings of this study have also shown a growing tendency over the last three decades to use persuasive lexical items, arguably in response to career pressures on academics and the high level of competition for getting published and cited in today's research world. These findings are consistent with the results obtained by Fraser and Martin (2009) who examined biased language which attributes significance to the claims. They found an increasing incidence of adjectives expressing subjective judgments in high-impact biomedical and clinical journals over a twenty-year time period (1985, 1995 and 2005). Vinkers et al. (2015) also reported an increase in the number of positive words such as "novel", "innovative" in the titles and abstracts of medical research published from 1974 to 2014. It seems that, as editorial acceptance of articles is primarily based on the potential interest to the readership, writers tend to exaggerate the importance of their research to increase the chances of getting published in high-impact journals. This shift in rhetorical practices thus shows how authors have changed their behaviours as a consequence of the current increasing pressure they face, which contrasts with the more neutral position towards research publication prevalent in the decades preceding the 1990s. At this point, we should question this growing trend towards research marketability, as it appears that the scholar who is best able to "sell" their research will be the most successful. This increasing use of hyperbolic language, however, may undermine what was traditionally considered objective scientific narration. Millar et al. (2019, 2020), for instance, have noted the existence of evidence that suggests that language that exaggerates the importance of findings can negatively affect readers' perceptions of the true value of scientific facts. Hyland and Jiang (2024) further argue that the use of promotional practices has currently reached a level where objectivity has been replaced by sensationalism. Vinkers et al. (2015) also criticise the growing research marketability, mainly driven by the large publishing houses, and call for a new academic culture that rewards quality over quantity and fosters objectivity.

At this point, we should also recognise the limitations of this research. Although we believe that the small corpus used in this study is sufficient to describe the evolution of rhetorical trends, our findings should be contrasted with those obtained in further research with a larger corpus. We ultimately aim at continuing our research in the future with further studies on other journals of the same subdiscipline. Since the guidelines for authors provided in journals are often

too general, these studies could show a complete picture of the prevalent rhetorical features of the biomedical RA considering the similarities and differences across journals, and how these features change over time. It would also be worth exploring the rhetorical strategies used by scholars to promote their research in languages other than English, as the frequency of use of persuasive elements and promotional functions may vary due to socio-cultural factors. For instance, in a recent intercultural study, Martín and Burgess (2024) examined comparatively the rhetorical structure of conference abstracts written in English and Spanish in the field of applied linguistics, showing a significant difference in the frequency of occurrence of the communicative function that states the implications of research findings, which appeared to be more prevalent in the English texts. This prevalence indicates that the use of promotional language is more important for the members of the international community than for the researchers of national academic communities, such as the Spanish one, as the degree of competitiveness is lower than in the international arena. We can thus infer that there is a series of contextual variables, such as peer reviewers' expectations or the size of the disciplinary communities and the relationships among their members that can affect the rhetorical configuration of academic texts in big and small writing cultures, even though the communicative purpose of a genre is similar. Therefore, EAL scholars should note that they need to adapt their rhetorical practices to their national and international disciplinary communities' expectations in order to increase the possibilities of getting their papers published.

Awareness of intercultural rhetorical preferences can thus help them make informed choices about whether and when to conform to the expectations of the target audience by choosing adequate rhetorical options depending on the context and type of audience they are addressing. In any case, a critical reflection on the advantages and disadvantages of publishing in English may also help EAL scholars decide more appropriately whether they want to contest the present situation of inequality by publishing in languages other than English or whether they choose to adhere to the currently prevailing mainstream in most disciplines. Be that as it may, we should conclude by urging editors and reviewers of international journals to show greater flexibility in accepting rhetorical practices other than the English ones which may be considered as divergences (e.g., L1 transfer features) from the discourse norms typically privileged by the members of the Anglophone academic community.

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