

Analysis on graphical abstract and plain language summary usage patterns in select publications



Connie Lam,¹ Abigail Killen-Devine,² Ben Castle,¹ Edward Kennedy,² Hillary Sotheran,² Sarah A. Hutchinson,³ Emmanuel Ogunnowo¹

¹HCG, Manchester, UK; ²HCG, London, UK; ³HCG, New York, USA

> Introduction

- Graphical abstracts (GAs) and plain language summaries (PLSs) are effective tools for communicating clinical data to healthcare professionals and patients, and they were endorsed in the GPP 2022 guidelines to improve the accessibility of research information to a wider audience^{1,4}
- Nevertheless, our previous findings showed that the uptake of both GAs and PLSs were limited in Parkinson's disease journals (ISMPP 2023)⁵ and the uptake of PLSs were low in nephrology and gastroenterology journals (ISMPP EU 2024)⁶

> Objectives

- Assess the influence of the GPP 2022 guidelines on author instructions and information provided by journals regarding GAs and PLSs 2 years on from the publication enhancer endorsement
- Extend the analysis performed on GAs and PLSs uptake in nephrology and gastroenterology journals by 1 year and perform the same analysis in haemato-oncology journals
- Examine the impact of GAs on Altmetric scores

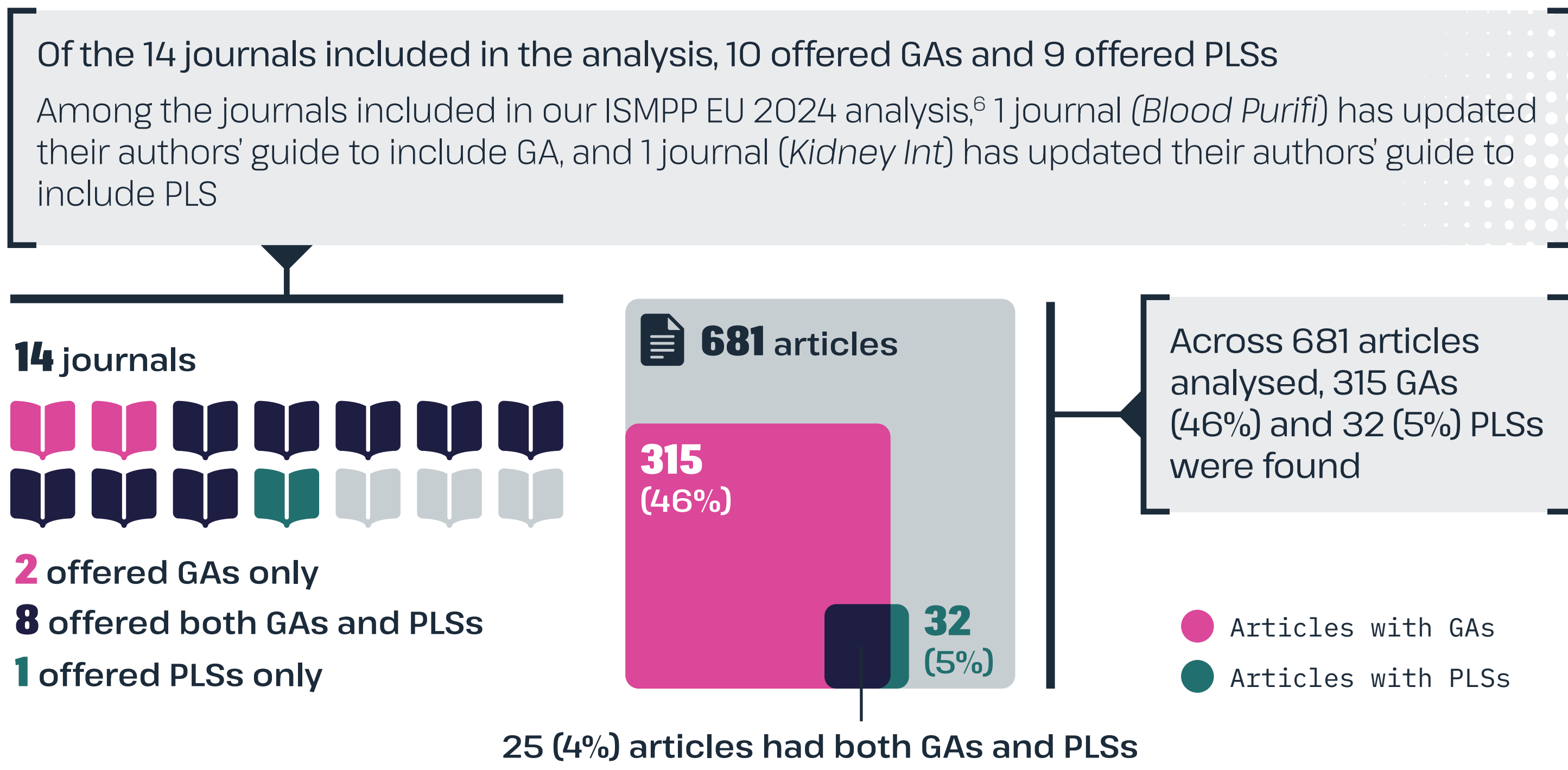
> Research design & methods

- Journal Selector (Sylogent, an Anju Software Company) was used to identify journals which published gastroenterology, nephrology and haemato-oncology literature using the major Medical Subject Headings 'gastroenterology and hepatology', 'nephrology' and 'oncology', respectively. Oncology journals with haem, haemotr, haematol, blood, or leuk in the title were selected as "haemato-oncology" journals.
- PubMed was then used to screen these journals to identify those which had published ≥40 articles per the following criteria:
 - Filters 'Clinical Trial', 'Clinical Trial, Phase III' and 'Randomized Controlled Trial'
 - Publication date: 1 January 2019, to 1 October 2024
- 'Hepatology'-only journals were excluded
- Selected journals were also assessed manually to determine the following:
 - Whether GA and PLS were mentioned in the journal guideline
 - The numbers of articles with GA and PLS (in freely available articles only)
 - The impact factor of the journal
 - Journal use of social media (Facebook, X, YouTube and LinkedIn)
 - Altmetric scores readily available on journal website

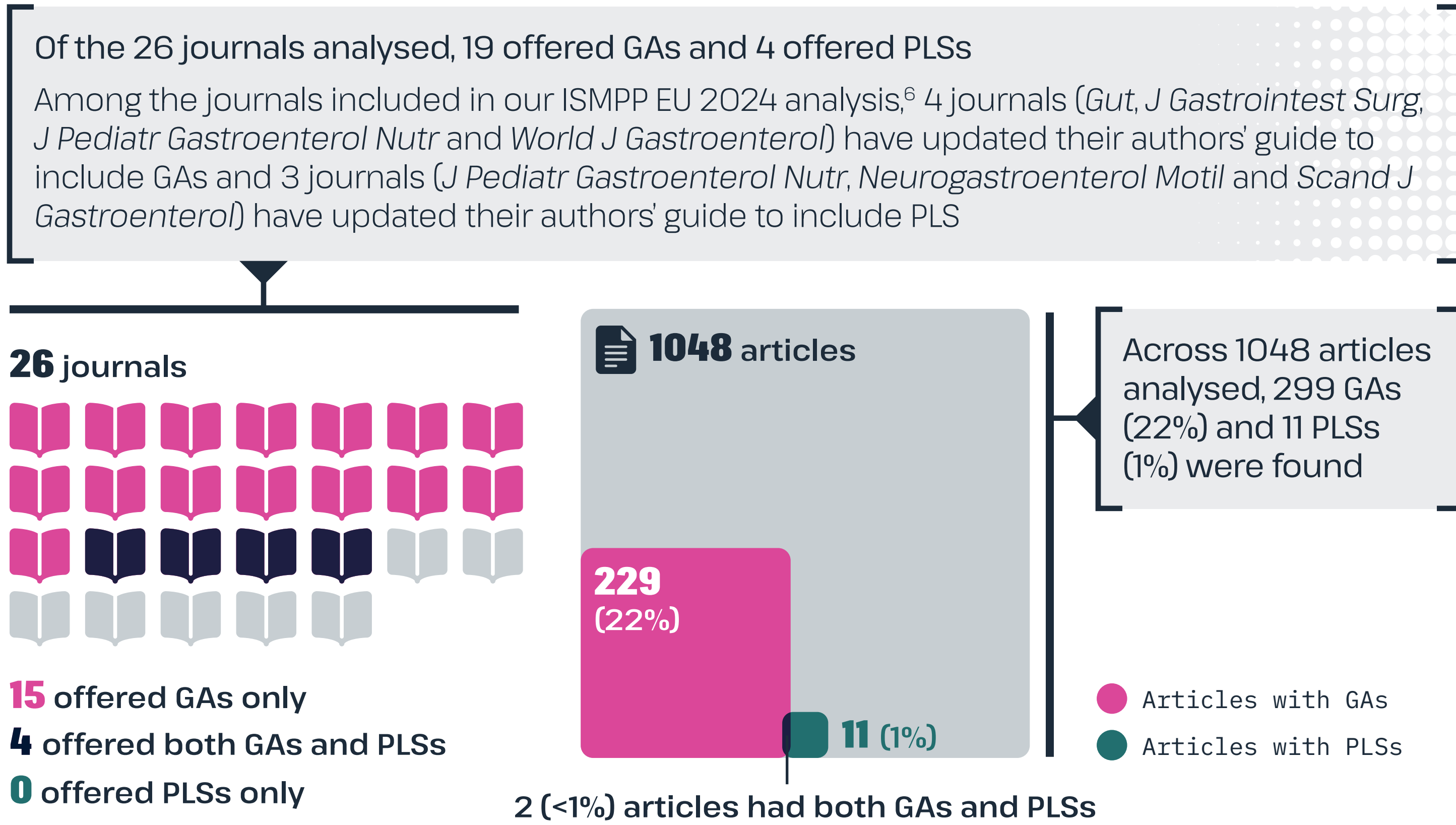
> Results

[One year follow-up analysis]

Nephrology journals

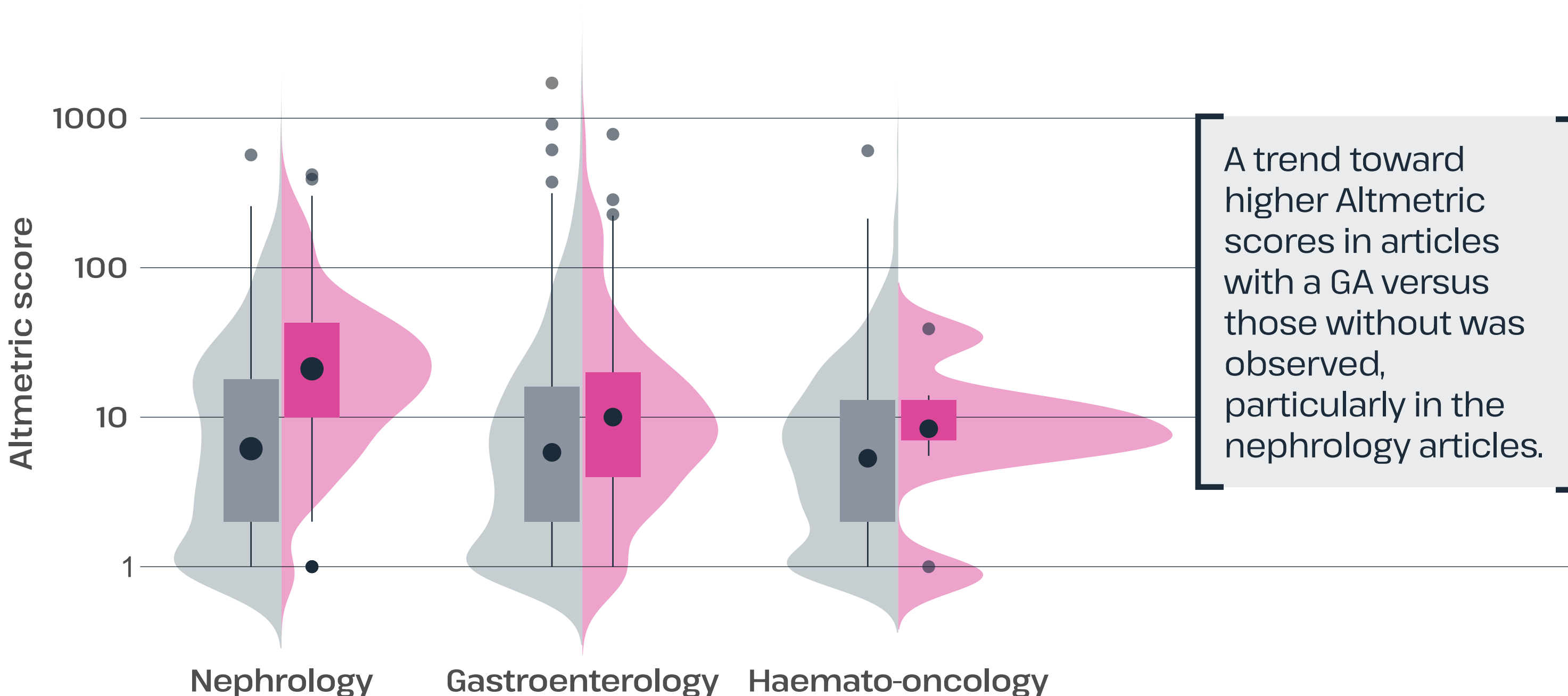


Gastroenterology journals



Only open access/freely available journals were included in this analysis; Templates for enhancement (GA or PLS) were not provided by any journal assessed; All enhancements were requested by journals at submission except for haematol Oncol, which requested PLS post-publication.

Altmetric scores



Altmetric scores were collected in October 2024 for articles published in journals with Altmetric scores freely available. In total, 599, 574 and 430 articles were included for nephrology, gastroenterology and haemato-oncology journals, respectively, with 177, 163 and 58 articles with no Altmetric score excluded.

References

- Zadro JR, et al. How do people use and view infographics that summarise health and medical research? A cross-sectional survey. *BMC Med Educ*. 2022;22(1):677. doi:10.1186/s12809-022-03744-6.
- Millar BC, Lim M. The role of visual abstracts in the dissemination of medical research. *Ulster Med J*. 2022;91(2):67-78.
- Barnes A, Patrick S. Lay summaries of clinical study results: an overview. *Pharmaceut Med*. 2019;33(4):261-268.
- DeTora LM, et al. Good Publication Practice (GPP) Guidelines for company-sponsored biomedical research: 2022 Update. *Ann Intern Med*. 2022;175(9):1298-1304.
- Vreeland A, et al. Ease of reading: Evaluating clinical data accessibility through the use of graphical abstracts and plain language summaries, a case study of Parkinson's disease publications. Presented at ISMPP US Annual Meeting 2023, April 24-26, Washington, USA.

6. Killen-Devine A, et al. Graphical abstract and plain language summary usage pattern in nephrology and gastroenterology publications. Presented at ISMPP EU Annual Meeting 2024, January 23-24, London, UK.

Acknowledgements

The authors wish to thank Celina De Guzman, George Hsu, Maddi Valdez and Mary Saurin for their research support; Dan Cragg, Jennifer Park, Paulo Estriga and Renee Symonds of HCG for their creative support; and Steven Graybow for editorial support.

Disclosures

All authors are employees of HCG.

New analysis in haemato-oncology journals*

Journal	Impact factor	Social media presence	Mentioned in guidelines [†]		Open access/total clinical articles 2019-2024, N	with GAs with PLS
			GA	PLS		
<i>Ann Hematol</i>	2.14	✗	✗	✗	89	
<i>Blood Cancer J</i>	12.8	✓	✓	✗	103	3 (2.9%) 2 (1.9%)
<i>Hematol Oncol</i>	2.29	✗	✓ [‡]	✓ [‡]	23	
<i>Leuk Lymph</i>	2.996	✗	✓ [‡]	✓ [‡]	47	2 (4.3%)
<i>J Hematol Oncol</i>	29.5	✗	✗	✗	62	
<i>J Pediatr Haematol Oncol</i>	0.79	✗	✗	✗	3	
<i>Leuk Res</i>	1.78	✗	✓	✗	7	
<i>Leukemia</i>	11.53	✓	✓	✓	95	5 (5.3%) 3 (3.2%)
<i>Pediatr Blood Cancer</i>	3.84	✗	✗	✗	60	

*Of note, the journal, *Blood*, was not captured as a haemato-oncology journal with our methodology. Future analysis will include this journal.
[†]When mentioned, enhancement is optional.
[‡]Support for enhancement is offered by the journal.

Of the 9 journals analysed, 5 offered GAs and 3 offered PLSs

Across 498 articles analysed, 8 GAs (2%) and 7 PLSs (1%) were found

> Conclusion

One year on, GA uptake continues to be higher (nephrology: 46% and gastroenterology: 22%) than PLS uptake (nephrology: 5% and gastroenterology: 1%). The uptake of GAs and PLSs were found to be the lowest in haemato-oncology journals (2% and 1%, respectively) among the therapeutic areas analysed. A trend toward higher Altmetric scores was observed in articles with a GA versus those without, although this requires further analysis.

> Discussion

- Following our ISMPP 2024 analysis,⁶ 1 nephrology and 1 gastroenterology journal introduced GA and PLS offerings in line with GPP 2022 guidelines. However, the overall uptake of GAs and PLSs remains low among publishers and authors in these therapeutic areas, suggesting slow adoption of these publication extenders
- In haemato-oncology journals, the utilisation of GAs and PLSs was also low; including in journals with GAs and PLSs mentioned in author guidelines. The limited uptake maybe attributed to the optional nature of these publication extenders and the lack of standardised templates to assist authors
- Across all therapeutic areas, utilisation of GAs remains more popular than PLSs. Ease of GA use in social media, availability of standalone PLSs in dedicated journals, and target audiences other than patients/general population may have influenced this trend
- Articles with GAs trended towards higher altmetric scores than articles without GAs in all therapeutic areas, with the most pronounced increase in nephrology journals. Future research is needed to determine if altmetric scores continue to increase in articles with GAs.

> Recommendations

- The visually appealing and easily digestible format of GAs and PLSs has the potential to reach wider audiences and should be encouraged in an effort to bring more value to scientific publications.
- More journals and publishers should be encouraged to offer GAs and PLSs to maximise extending the reach of publications
- For authors, selecting to publish in journals that offer GA and PLS can enhance the attention and engagement metrics of their articles, especially when shared via social media