

Readability of plain language summaries (PLS): are they getting better?

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Background

- Articles published in peer-reviewed scientific and medical journals are written using technical language and may not be easily understood by a broad audience^{1,2}
- Plain language summaries (PLS) are increasingly being written to help expert and nonexpert audiences understand the key points and potential impact of medical and scientific data
- The intended readership includes patients, patient advocates, caregivers, policymakers, and even health care professionals and researchers who are too busy to keep up on the latest scientific literature or who want to be updated on different medical fields
- Although there have been many efforts to improve readability of PLSs,³⁻⁶ few medical research articles include PLSs that are understandable to a general audience

Objective

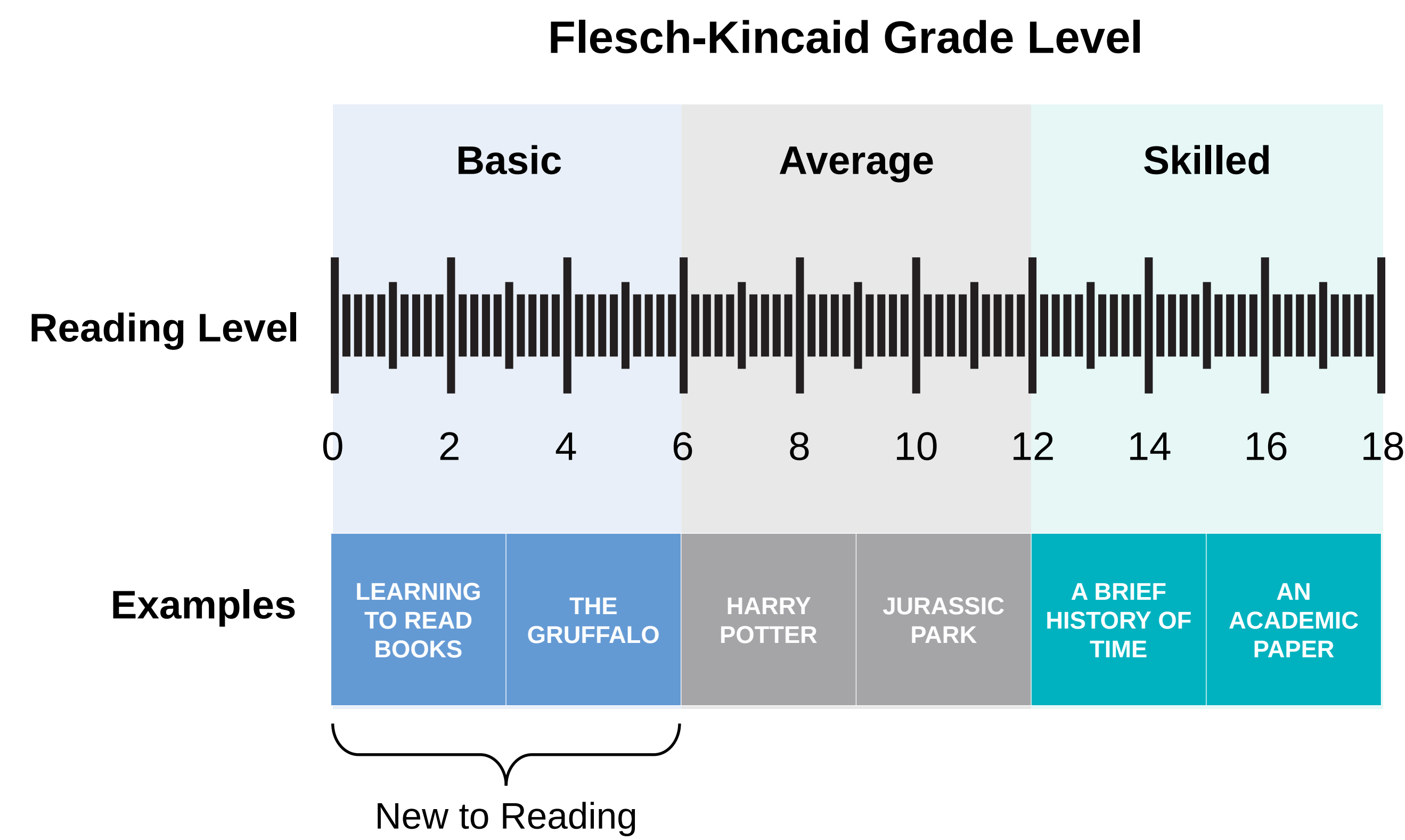
- To examine the readability of PLSs published over the past 10 years

Methods

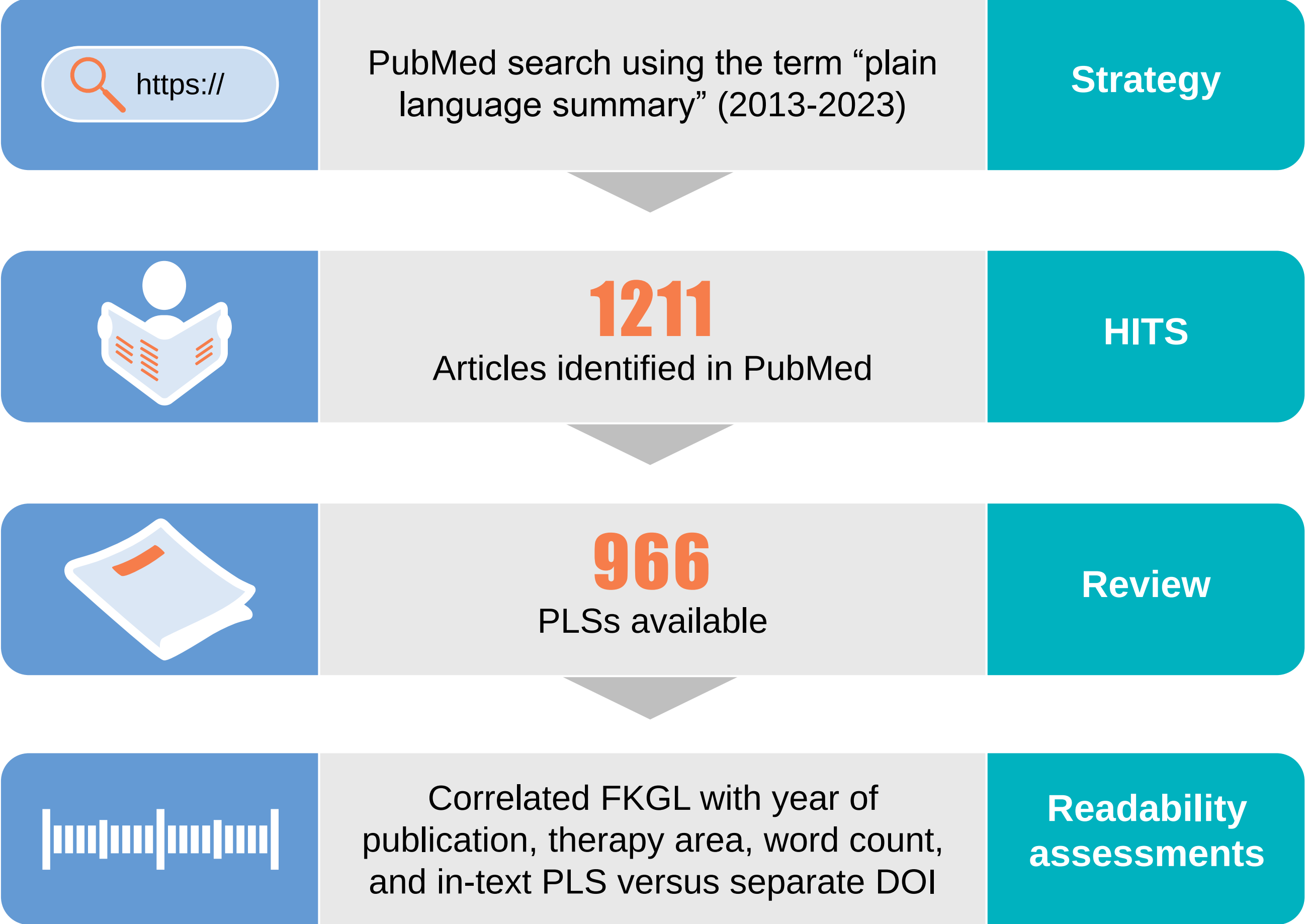
Figure 1. Research design and methods

What we did

- In August 2023, we conducted a PubMed search to identify articles with a linked PLS using the search term “plain language summary” (with or without quotes) and restricted to the years of 2013 to 2023
- Readability of PLSs was assessed using the Flesch-Kincaid Grade Level (FKGL), which was evaluated for correlation with year of publication, therapy area, word count, and in-text PLS versus separate DOI using descriptive statistics



How we did it



DOI, digital object identifier; FKGL, Flesch-Kincaid Grade Level; PLS, plain language summary.

Results

- Of 996 PLSs analyzed, the mean and median Flesch-Kincaid Grade Level (FKGL) were 14.9 and 14.6, respectively
- The most common therapy areas with PLSs were oncology (n=191), health literacy (n=170), and health systems (n=122) (Table 1)

Table 1. Number of PLSs by therapy area

Therapy area	Number of PLSs (N=996)
Oncology	191
Health literacy	170
Health systems	122
Neurology	99
Infectious disease	52
Cardiovascular/pulmonary	49
Musculoskeletal/rheumatology	48
Nephrology	45
Endocrinology	44
Psychiatry	27
Ecology	26
Gastrointestinal	24
Respiratory	21
Dermatology	21
Sociology	17
Ophthalmology	15
Obstetrics/gynecology	14
Dentistry	4
Immunology	4
Hematology	3

PLS, plain language summary.

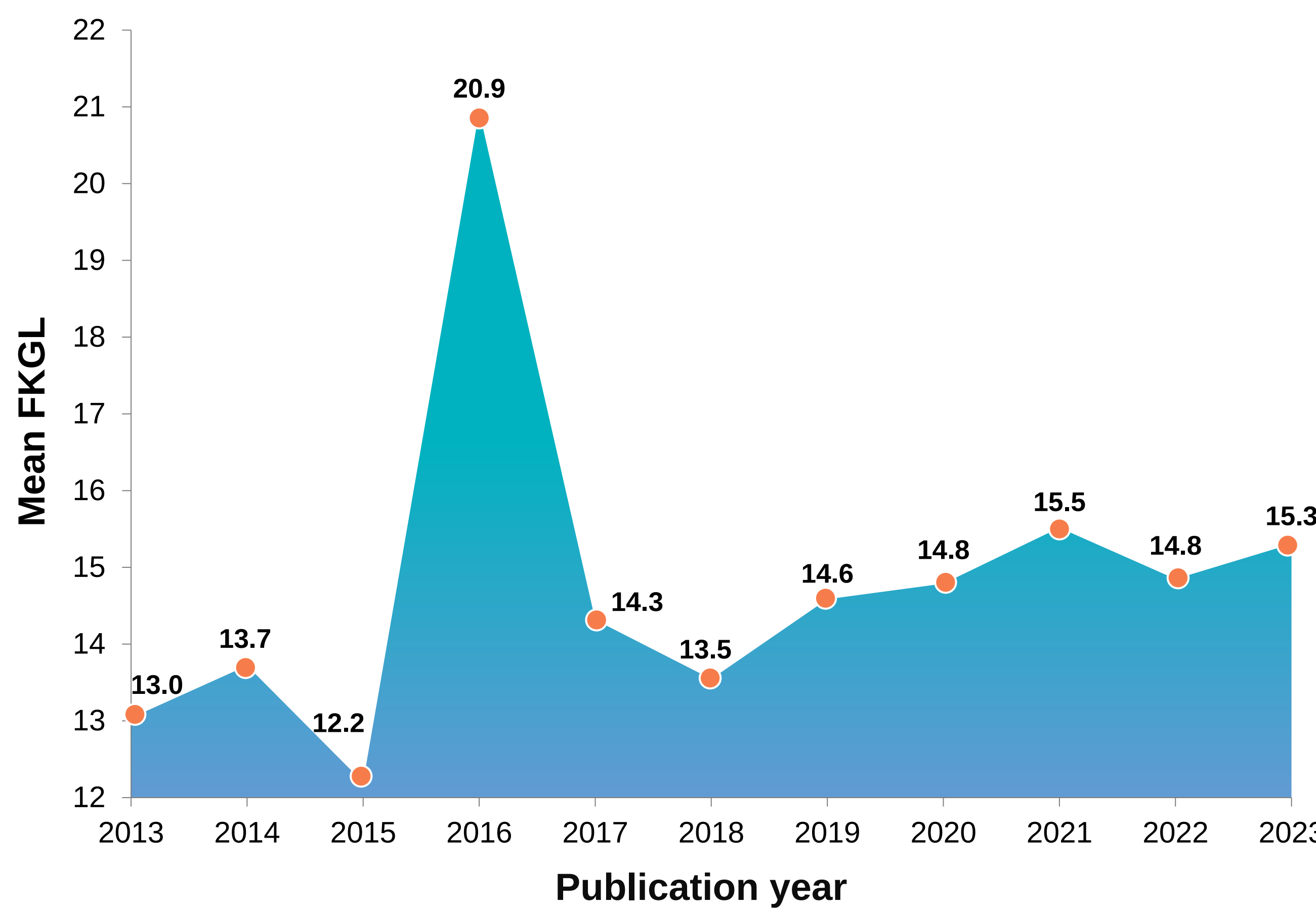
Key Insights

Despite efforts to raise awareness of the purpose and importance of PLSs, **readability of PLSs** as assessed by Flesch-Kincaid Grade Level **has not improved** over the **past 10 years** and remains substantially **above** the recommended **grade 6-8 reading level**

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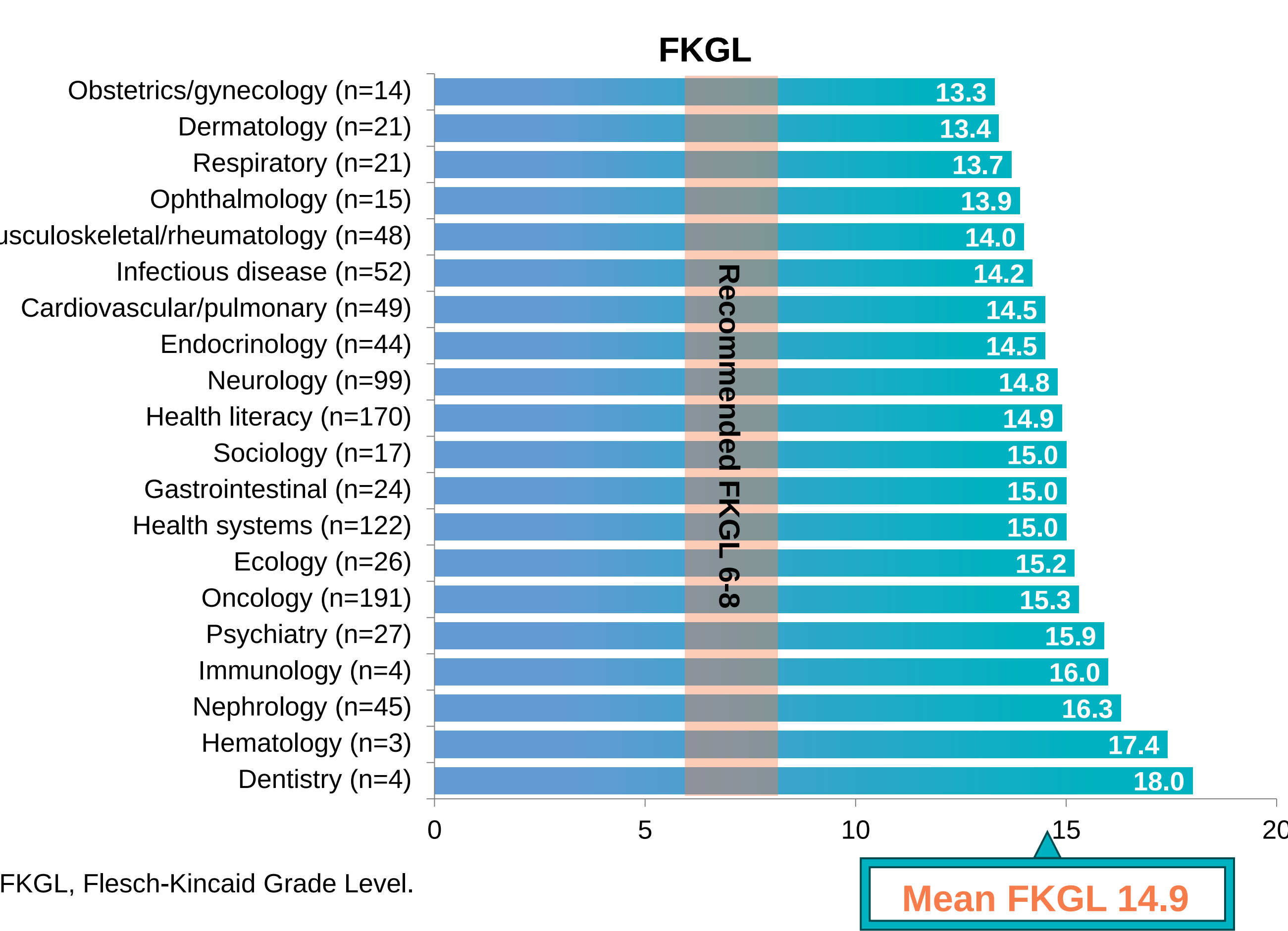
- No clear correlation was observed between FKGL and publication year (Figure 2) or therapy area (Figure 3)

Figure 2. Mean FKGL by year



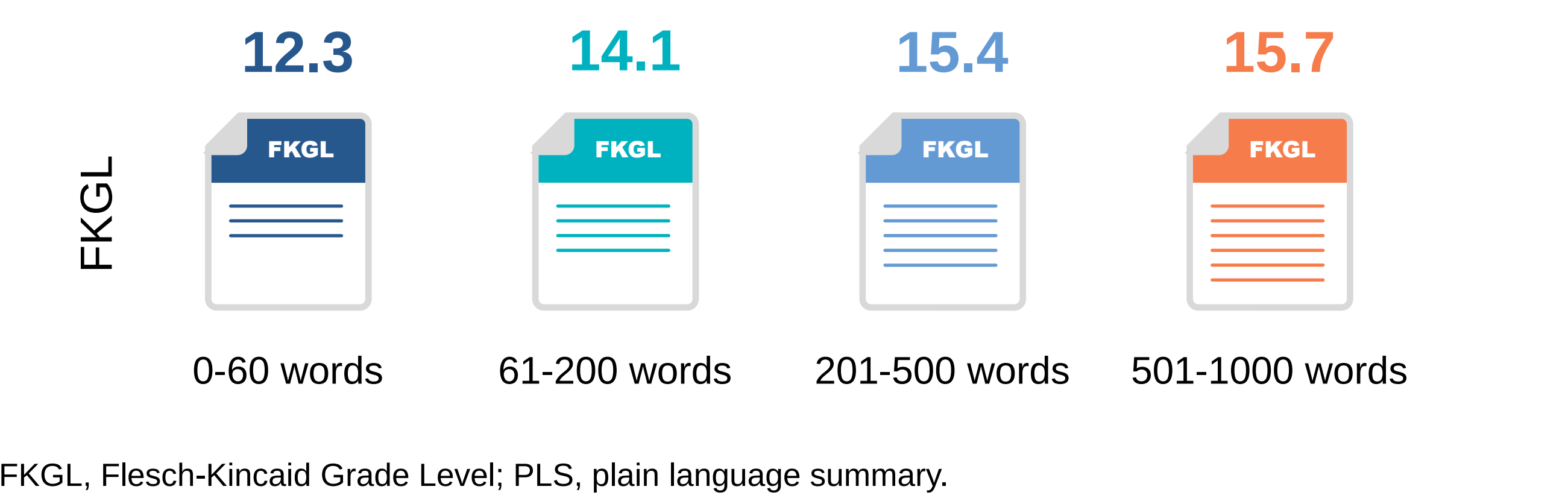
FKGL, Flesch-Kincaid Grade Level.

Figure 3. Mean FKGL by therapy area



- When analyzed by in-text PLS (n=890) or separate digital object identifier (DOI; n=106), PLSs with a separate DOI had a lower mean FKGL (12.6 vs 15.2)
- When analyzed by word count, PLSs with a higher word count had a lower mean FKGL (Figure 4)

Figure 4. Mean FKGL by PLS word count



Limitations

- The analysis was limited to those PLSs that were freely available. Including those that were behind paywalls may have provided different results
- For infographic PLSs, we limited the assessment to the text part of the summary; infographics may be more accessible⁷
- Inclusion of complicated drug names in the PLS can increase the FKGL

Conclusions

- PLSs have the potential to improve transparency, accountability, accessibility, and inclusivity of medical research for both expert and nonexpert audiences; however, this requires improved accessibility and readability of PLSs
- The FKGL of the PLSs analyzed over the past 10 years was at a higher level than the recommended grade 6-8 reading level
- There were no clear trends regarding the FKGL by year of publication or therapy area
- PLSs with a higher word count and those with their own DOI had lower FKGL scores

References

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- All authors are employees of The Lockwood Group (Stamford, CT, USA)

