

Readability of published vs artificial intelligence-generated plain-language summaries

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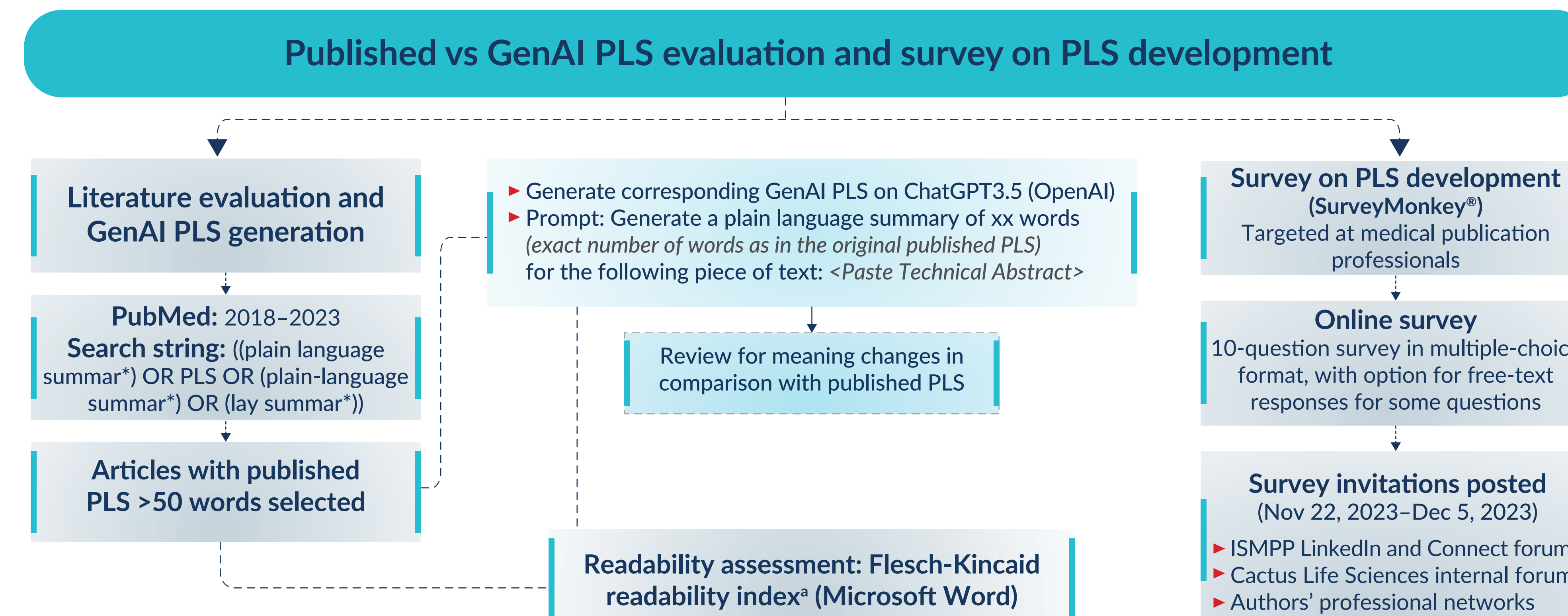
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BACKGROUND

- Plain-language summaries (PLS), written in layman language, aim to make the results of biomedical research more accessible to a wide audience.^{1,2} However, writing scientific content in simple, non-technical language is often a challenge for authors³
- Generative artificial intelligence (GenAI) may be particularly useful in developing PLS owing to its ability to convert complex content into easily understandable language. GenAI outputs can be further enhanced and refined by using well-designed, specific prompts
- The objectives of our study were to
 - compare the readability of published vs corresponding GenAI-generated PLS
 - gather insights on PLS development using GenAI from medical publication professionals

METHODS



*The Flesch-Kincaid readability index comprises a reading ease score and a grade level score. Reading ease score is measured on a scale of 1 to 100, with higher scores indicative of better readability; grade level, which is reflective of the US grade level of education required to understand the assessed text, is measured on a scale of 0 to 17+; the higher the grade level, the more complex is the text.

CONCLUSIONS

- Reading ease of published PLS was markedly lower than the recommended guidelines⁴
- Reading ease was significantly improved for GenAI PLS compared with published PLS
- Barriers to implementation of GenAI in PLS development, such as data confidentiality concerns, need to be overcome before considering its widespread use in medical publications

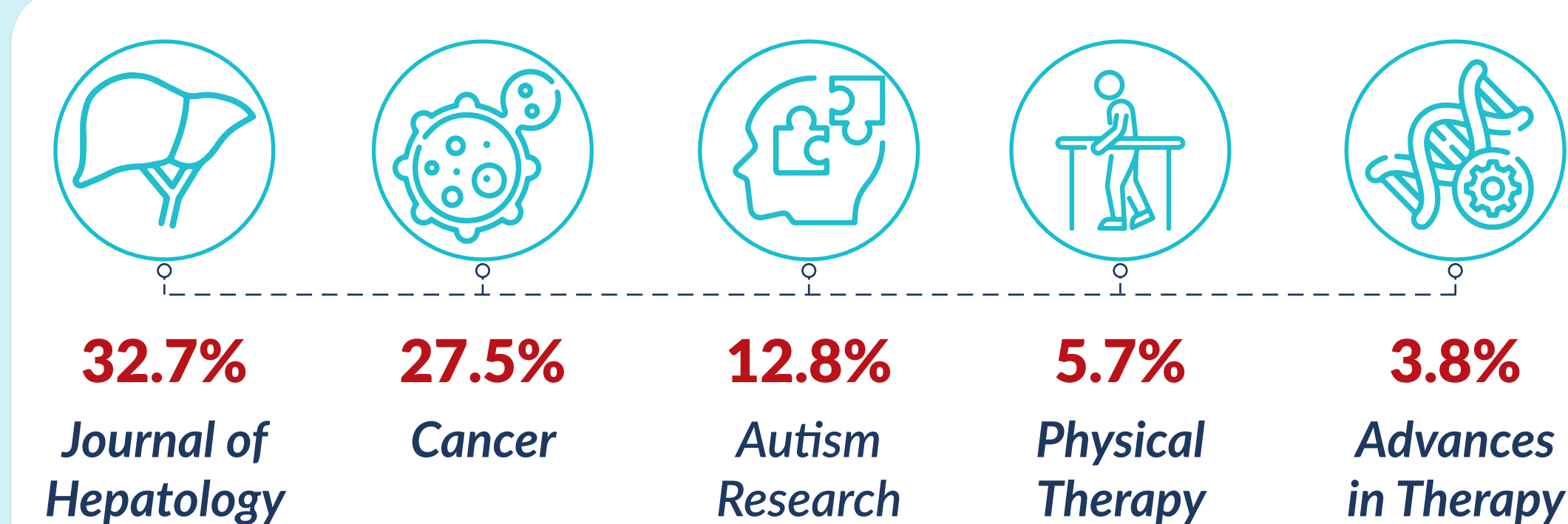
RESULTS

Availability of PLS in medical literature



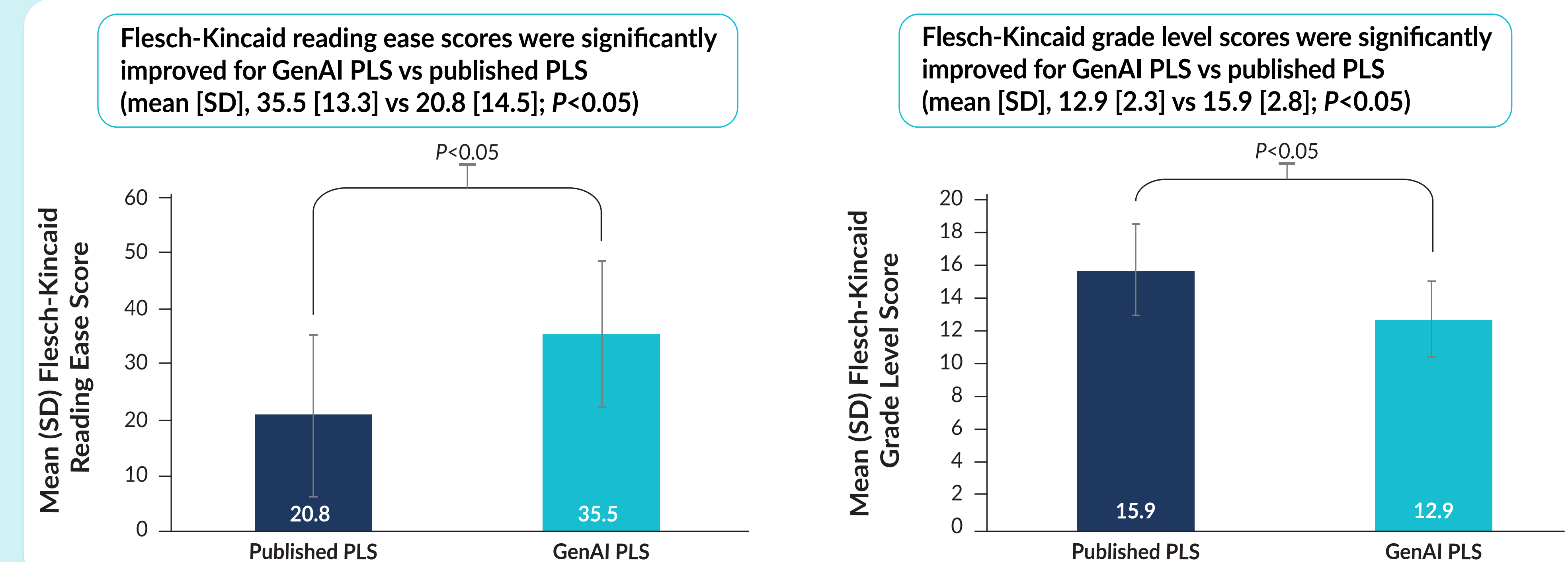
*Word count range: 18–846 words.

Top five journals with published PLS*



*Percentages were calculated considering N=211 publications with an accompanying PLS

Readability of published vs GenAI PLS



Between-group differences were compared using a two-sample t-test (assuming equal variances).

- None of the published PLS met the recommended reading age of 12 years (grade level 6), whereas three GenAI PLS met the recommended reading age/grade level⁴
- No meaning changes were observed in the GenAI PLS compared with the published PLS.

Survey results (N=65)

How many PLS have you written or been involved in?

<5 : 17/46 (37.0%)
5–10 : 17/46 (37.0%)
>10 : 12/46 (26.0%)
n=4/50 did not respond

What reading grade level do you typically consider while developing PLS?

Grade 5–8 : 22/46 (47.8%)
Grade 9–12 : 15/46 (32.6%)
Do not consider : 9/46 (19.6%)

Have you been involved in the development of PLS?

Yes : 50 (79.0%)
No : 13 (21.0%)
n=2/65 did not respond

Do you use readability indices when developing PLS?

Yes : 23/46 (50.0%)
No : 16/46 (35.0%)
Not aware : 7/46 (15.0%)

What is your current role?

Medical writer : 54 (83.0%)
Other* : 11 (17.0%)

Have you considered using GenAI tools to assist with PLS development?

Yes : 16/46 (35.0%)
No : 30/46 (65.0%)

Survey respondents
(N=65)

*Other included journal director, managing editor, professor, scientific services personnel, and patient advocate.

Opinions on GenAI use in PLS development

“Using AI such as ChatGPT to write publication PLS is limited due to the confidential nature of the content”

“In general, we cannot use AI for plain language summaries because inputting the data into a publicly available AI breaches confidentiality and could be considered prior publication that would prevent presentation of the data at a scientific congress or in a medical journal”

“AI fundamental learning process puts proprietary information at risk and has a long way to go before it can be used in this setting”

“We are working with a proprietary AI. I anticipate good 1st drafts of PLS from this in the next year”



Scan the QR code for the interactive poster

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