

Accessibility of scientific information for non-English speakers: using browser-based tools to translate plain language summaries (PLS) and abstracts

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Background

- The introduction of PLS has improved accessibility to scientific content among the general public; however, language barriers still impede widespread dissemination of information.¹
- Even though just 17% of the world's population is English-speaking, most scientific publications are published in English.²

Objective

This pilot analysis aimed to compare the translation quality of PLS versus abstracts translated by a selected browser-based translation software.

Methods

- Five Ipsen-sponsored publications with accompanying PLS were selected (Figure 1).
- PLS and abstracts³⁻⁷ were translated into French, German, Mandarin and Slovenian using Google Translate (Figure 1).
- Four bilingual reviewers with a scientific background assessed the translation quality using survey questions covering appropriateness of word/phrase selection, grammar and clarity (Figure 1).

Results

Word selection

- Inappropriate word insertion (0.2% vs 0.1% words), omission (0.2% vs 0.2%) and misspelling rates (0.05% vs 0.02%) were low in translated PLS and abstracts respectively, and most errors had little impact on meaning.
- Translated PLS versus abstracts had lower proportions of non-translated and mistranslated words (both comparisons 0.6% vs 1.0%).

Phraseology

- Fewer incorrect phrase translations occurred in translated PLS versus abstracts (0.35 vs 0.41 errors/100 words).

Grammar

- Translated PLS versus abstracts had similar rates of grammatical/syntax errors, but a lower proportion of these errors with potential for misinterpretation (17.2% vs 40%, respectively).

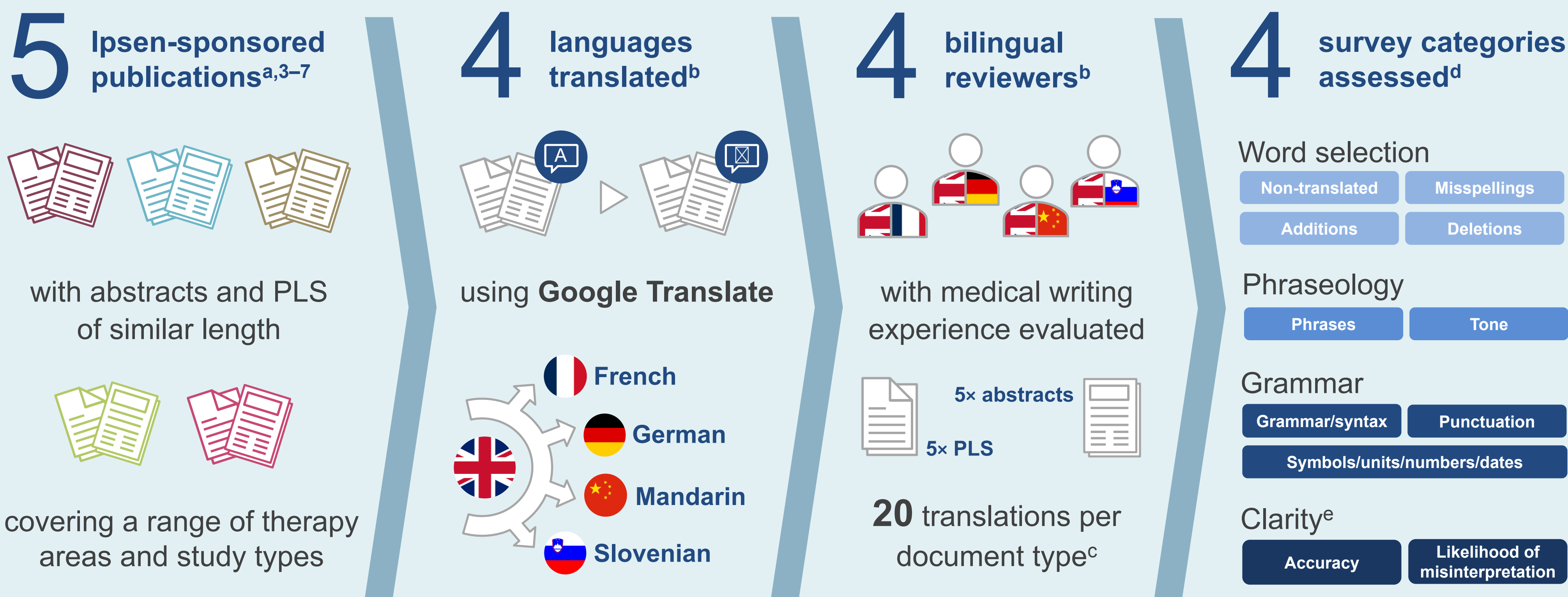
Clarity

- On a 5-point Likert scale, translated PLS scored favourably versus abstracts for overall translation accuracy (mean, 4.60 vs 4.30, respectively) and likelihood of misinterpretation (mean, 4.55 vs 4.25, respectively).
 - For overall translation accuracy, the proportions of translations considered to be “very accurate” were 60% for PLS compared with 45% for abstracts (Figure 2).
 - Regarding how likely it was that translations would lead to misinterpretation, 60% of translated PLS versus 45% of translated abstracts were reported as “definitely not” likely (Figure 3).

Conclusions

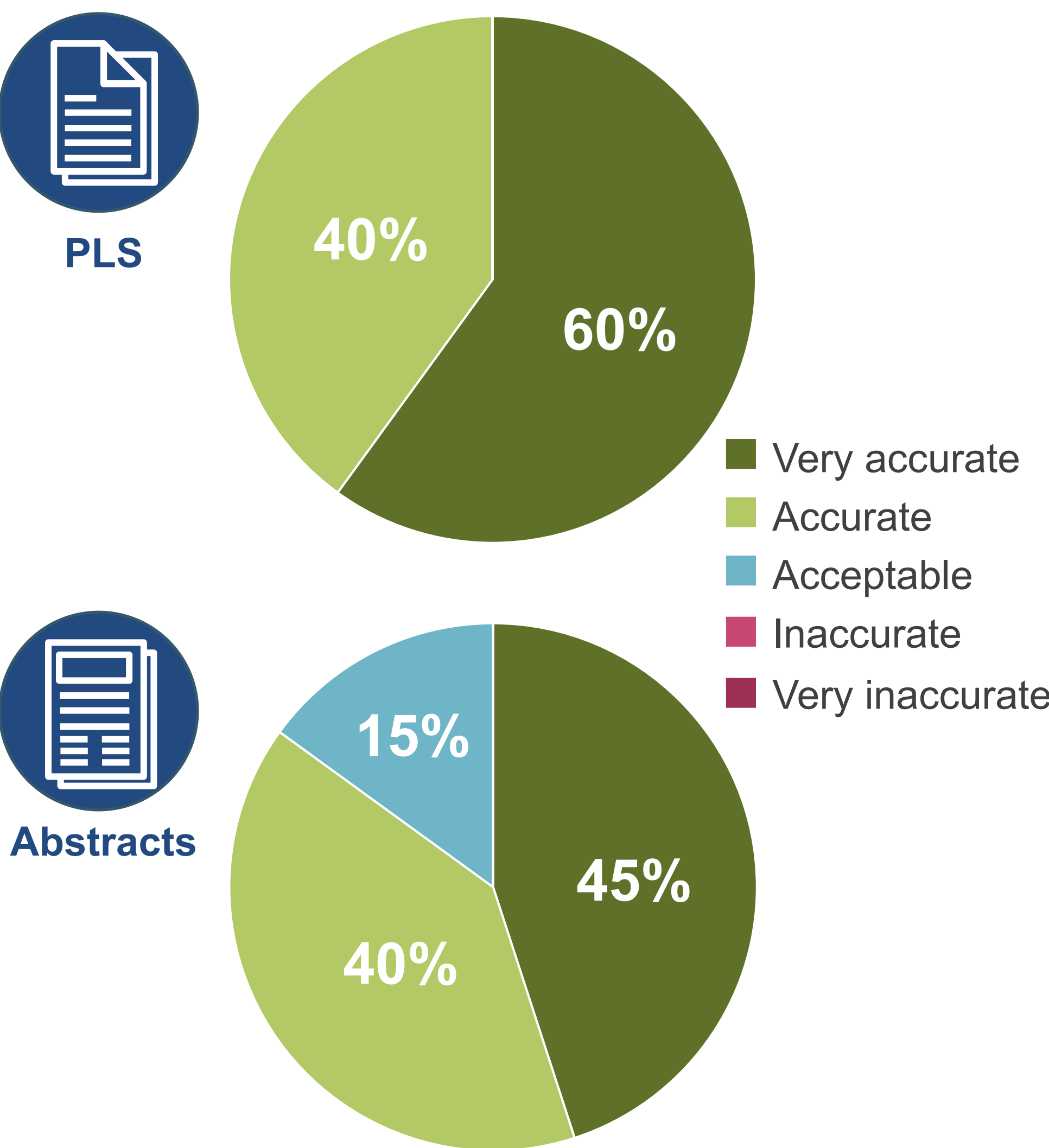
- Translations of both PLS and abstracts were considered accurate and readable, though PLS scored higher across most measures, possibly owing to inclusion of complex sentences, abbreviations and scientific terminology within the abstracts.
- Based on our findings, Google Translate is considered to be a quick and easy approach to translating scientific/medical information summaries for non-English speakers.
- However, before translation, discoverability remains a challenge for non-English speakers.
 - Engagement and collaboration with medical publishers is needed to improve access for non-English speakers.
- Study limitations included small sample size (PLS, abstracts, reviewers and languages), lack of variation in language quality and style (all text developed by one sponsor; Ipsen), and use of only one browser-based translation software.

Figure 1: Study design



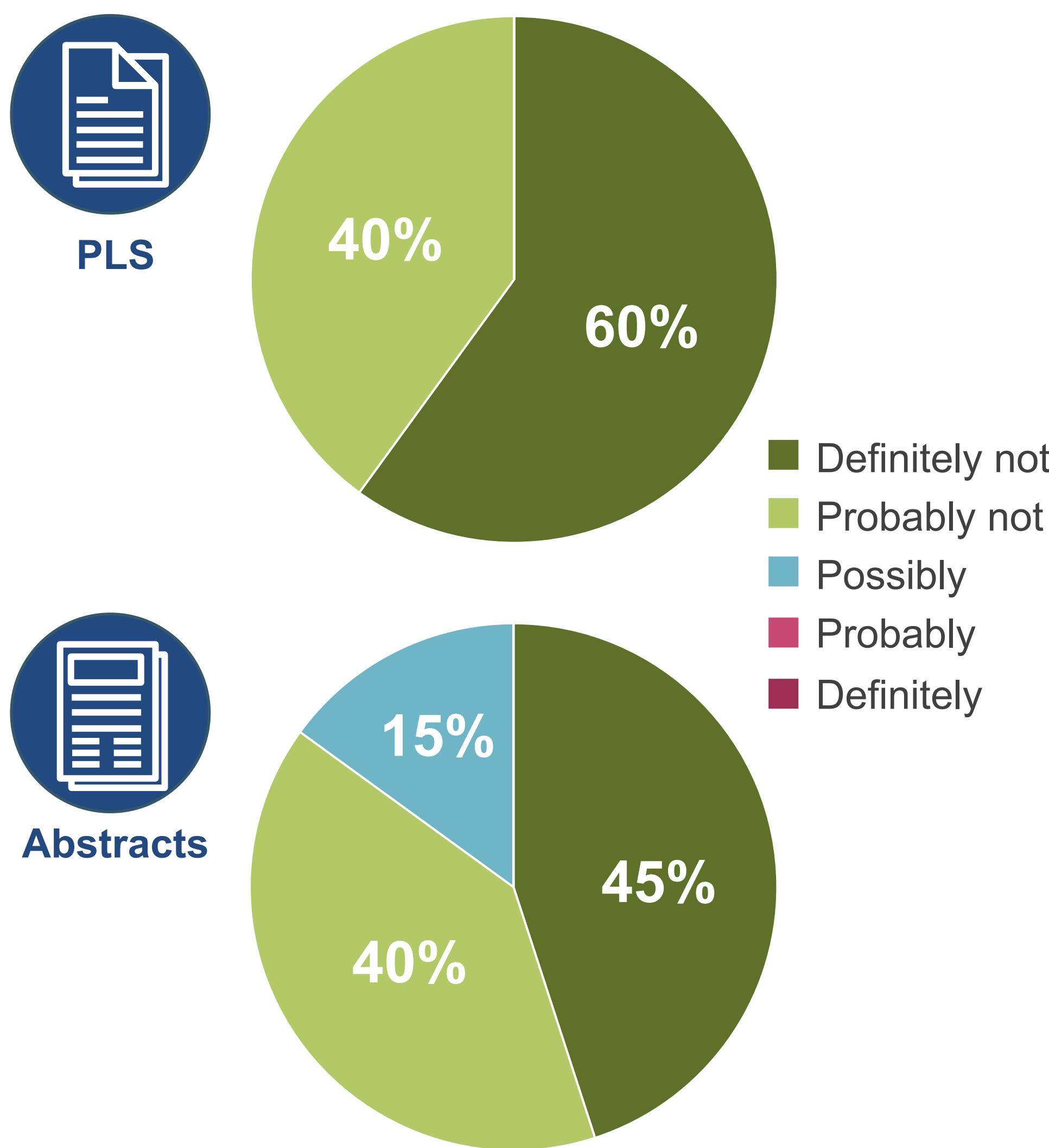
^aPublications were selected from one source to limit any impact of differences in the quality of English in original documents on the translations; publications with medical writing assistance were selected to ensure high quality English. Ipsen-sponsored publications were selected because they were readily accessible and known to have both abstracts and PLS. ^bLanguages were selected as examples of distinct proto-languages, and because these were the native languages of four in-house bilingual employees. ^cOne reviewer per translated language. ^dUsing standardized assessments, reviewers judged the impact of each category on the meaning, understanding and readability of translated text. ^e‘Accuracy’ and ‘likelihood of misinterpretation’ were assessed using a 5-point Likert scale; 5 = highest accuracy and lowest likelihood of misinterpretation.

Figure 2: Overall, how accurate was the translation to the original text?



None of the reviewers found the translated text of PLS or abstracts in any language to be “inaccurate” or “very inaccurate”

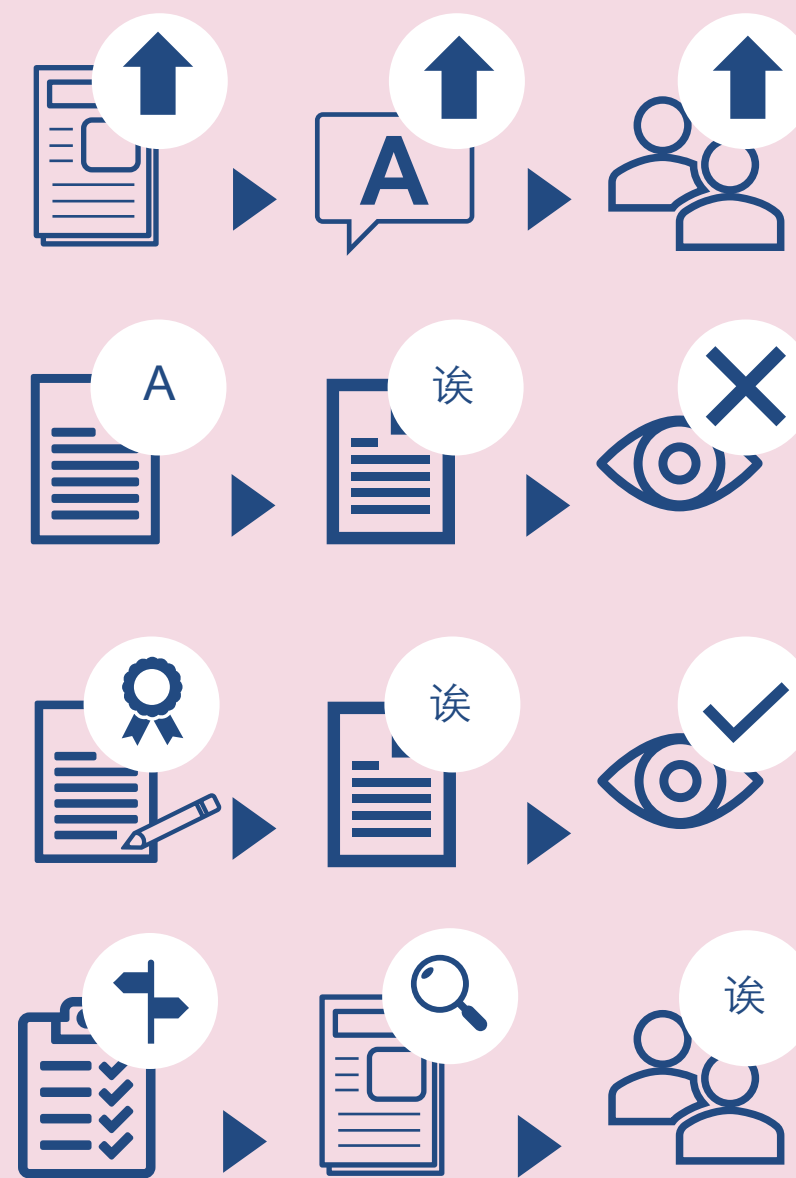
Figure 3: Overall, how likely is it that the text will be misinterpreted?



None of the reviewers found the translated text of PLS or abstracts in any language to be “probably” or “definitely” misinterpreted

Future extensions to the pilot study

- Increase the sample size with additional publications, languages and reviewers, and analyse PLS and abstracts from a range of sources that cover a variety of writing styles
- Analysis of the factors contributing to poor readability of translations; passive voice and acronyms were identified as issues during this pilot analysis
- Develop recommendations for writing both PLS and abstracts, considering specific factors for translation of each publication type (e.g. use of colloquial language in PLS)
- Work with journals to provide guidance and suggestions on how best to improve the discoverability of PLS and abstracts for non-English speakers



References 1. Amano T *et al.* *PLOS Biol* 2016;14:e2000933. 2. Bahji A *et al.* *Nordisk Alkohol Nark* 2022. Available at: <https://doi.org/10.1177/14550725221102227>. Accessed April 2023; 3. Adelman DT *et al.* *Adv Ther* 2019;36:3409–23; 4. Turner-Stokes L *et al.* *J Rehabil Med* 2022;54: doi:10.2340/jrm.v53.690; 5. Danchenko N *et al.* *J Med Econ* 2022;25:919–29; 6. Paz-Ares L *et al.* *Cancer* 2022;128:1801–11; 7. Kelley RK *et al.* *Adv Ther* 2020;37:2678–95.

Author contributions All authors made substantial contributions to study conception/design, or acquisition/analysis/interpretation of data; drafted the publication or revised it critically for important intellectual content; and gave their final approval of the publication.

Disclosures CB, VT: Employees of Oxford PharmaGenesis; ER, CP: Employees of Ipsen.
Acknowledgements The authors thank the four language reviewers who were involved in the study.
Medical writing support The authors thank Oxford PharmaGenesis for providing medical writing support/editorial support, which was industry sponsored in accordance with Good Publication Practice guidelines (GPP 2022).
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