

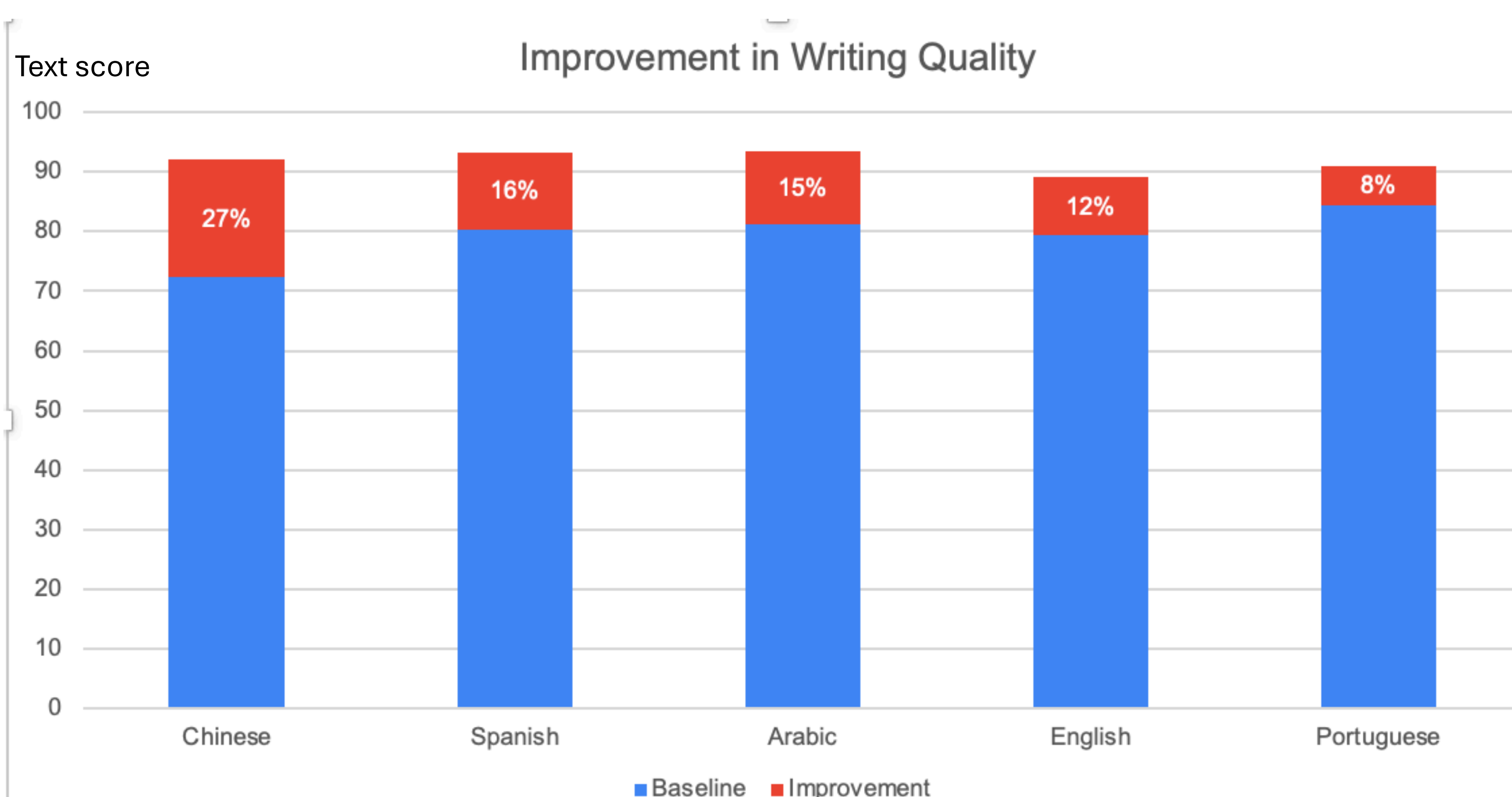
# ChatGPT could help transcend language barriers and enhance the quality and readability of academic writing



**Background:** Effective scientific communication is essential for sharing research findings. Non-native English-speaking scientists often struggle to produce clear and readable manuscripts. This study examines the potential of ChatGPT to improve the writing quality of research abstracts by both native and non-native English speakers, thereby enhancing overall scientific communication.

The **quality of abstract writing improved** in all cases. ChatGPT could provide **substantial support** to authors in effectively communicating their research. Improved clarity may positively **impact publication acceptance rates**, as writing quality is a frequent critique leading to article rejections.

For text scores and rare words: mean (SD). For reading scores and rare-word differences: median (IQR). H: humans. AI: artificial intelligence through ChatGPT 4.o. \*Paired T test



- The median **improvement in the text score was 11** (IQR 4.5-17)
- **In 93 out of 100** analysed abstracts, ChatGPT improved the text score, both in native and non-native English speakers (see Table)
- In 25% of the abstracts, the **improvement in text score was very important (between 17 and 52)**
- The most significant score increases were observed among native **Spanish (13.1), Arabic (12.6), and Chinese (19.7)** authors.
- The **readability score improved in half** of the abstracts, while it **decreased in the other half**
- **Rare words increased in 2/3** of the abstracts following ChatGPT

## Methods

Cross-sectional study

### Inclusion criteria:

- Articles with abstracts written in English, published on PubMed between 2014 and 2023.
- Total: 100 abstracts (20 from native Spanish speakers, 20 from native Portuguese speakers, 20 from native Chinese speakers, 20 from native Arabic speakers, and 20 from native English speakers).
- **Intervention:** ChatGPT (see the prompt used on the right).
- **Initial and Final Evaluations:** We used Grammarly to assess both text scores (0-100) and readability scores (0-100), with higher values indicating better quality. For rare words (%), lower percentages reflect improved readability.

This is the prompt for ChatGPT:



**Limitation:** While we assessed text and readability scores, ensuring the main content remained consistent, we recommend that authors carefully review the final version after ChatGPT's intervention, as there is a potential risk of accuracy loss.

