

Does AI Pass the Smell Test? Evaluating Artificial Intelligence Applications in Rhinology Patient Education

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PROBLEM/ BACKGROUND

- We explored the utility of ChatGPT 3.5 to assist in rhinology patient education.
- We evaluated ChatGPT's responses, comparing them with a panel of expert reviewers and explored its potential applications in the field of rhinology.



RESEARCH QUESTION/ METHODS

Research Question:

- What is the capability of AI to comprehensively answer patient questions regarding common rhinologic complaints?

Methodology:

- PRISMA style review using keywords "Artificial intelligence" and "Otolaryngology".
- Common survey questions were related to rhinologic disease and surgical procedures.
- Panel of experienced rhinologists ranked results and noted any deviations from standard of care or errors in medical advice.

1085 Initial Articles from PubMed



877 Remaining after removing non-English, abstracts, and review articles



132 remaining after reviewing titles



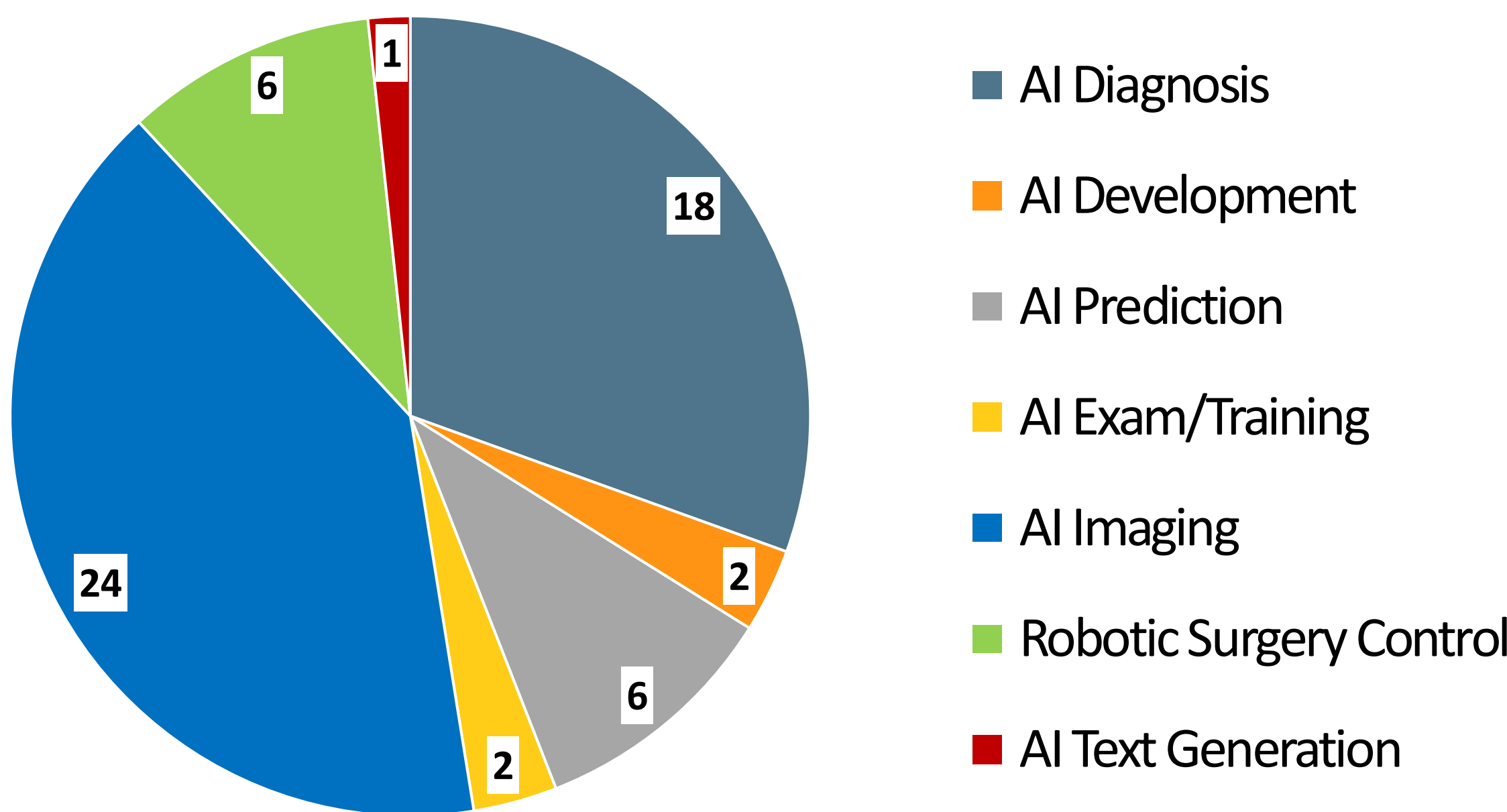
69 remaining after reviewing abstracts



59 final articles after reviewing the full manuscript for inclusion

SYSTEMATIC REVIEW RESULTS

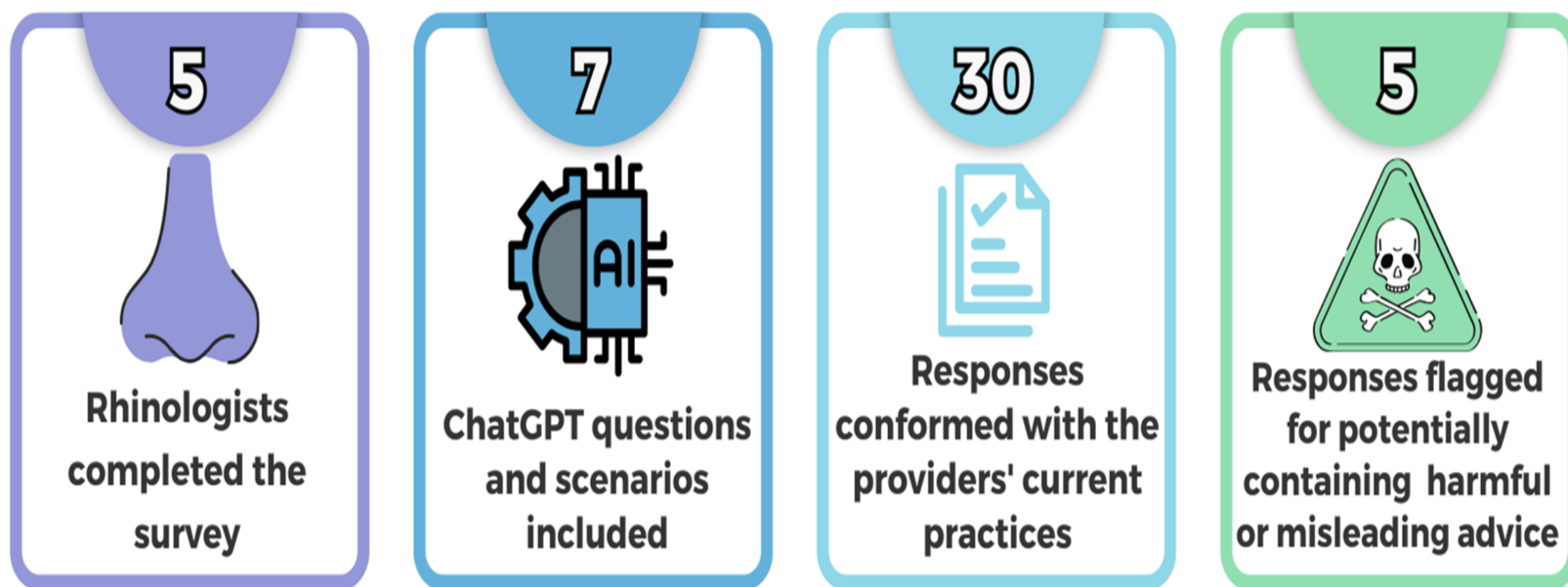
Artificial Intelligence Use Cases in Systematic Review



Results: Most articles focused on augmenting the physician's responsibilities by aiding interpretation of radiographic imaging, planning of surgical procedures, and rendering proper diagnosis.

Findings: Very few of these utilized modern AI tools to interact with patients and provide education. We sought to address the gap in patient centered education by evaluating publicly available tools to answer common questions from patient's related to rhinology conditions/procedures.

SURVEY RESULTS FOR PATIENT EDUCATION



Questions Included:

- Reasons for stuffy nose
- Explaining chronic rhinosinusitis
- Would nasal surgery help anyone
- Post-surgical expectations of nasal surgery
- Risks of nasal surgery
- Would smell improve after nasal surgery
- If balloon surgery was effective

Rhinologist's Ratings of ChatGPT Responses

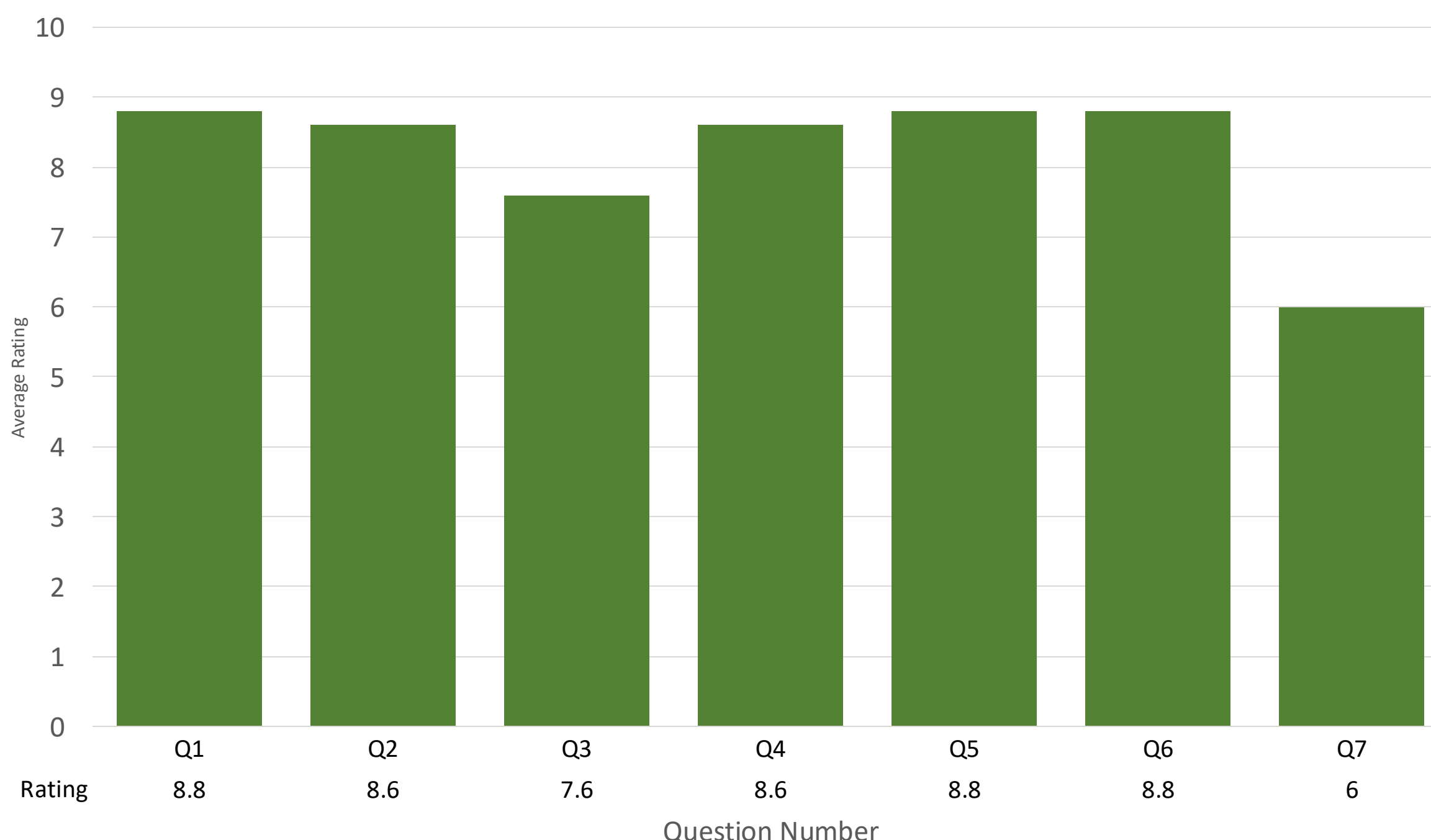
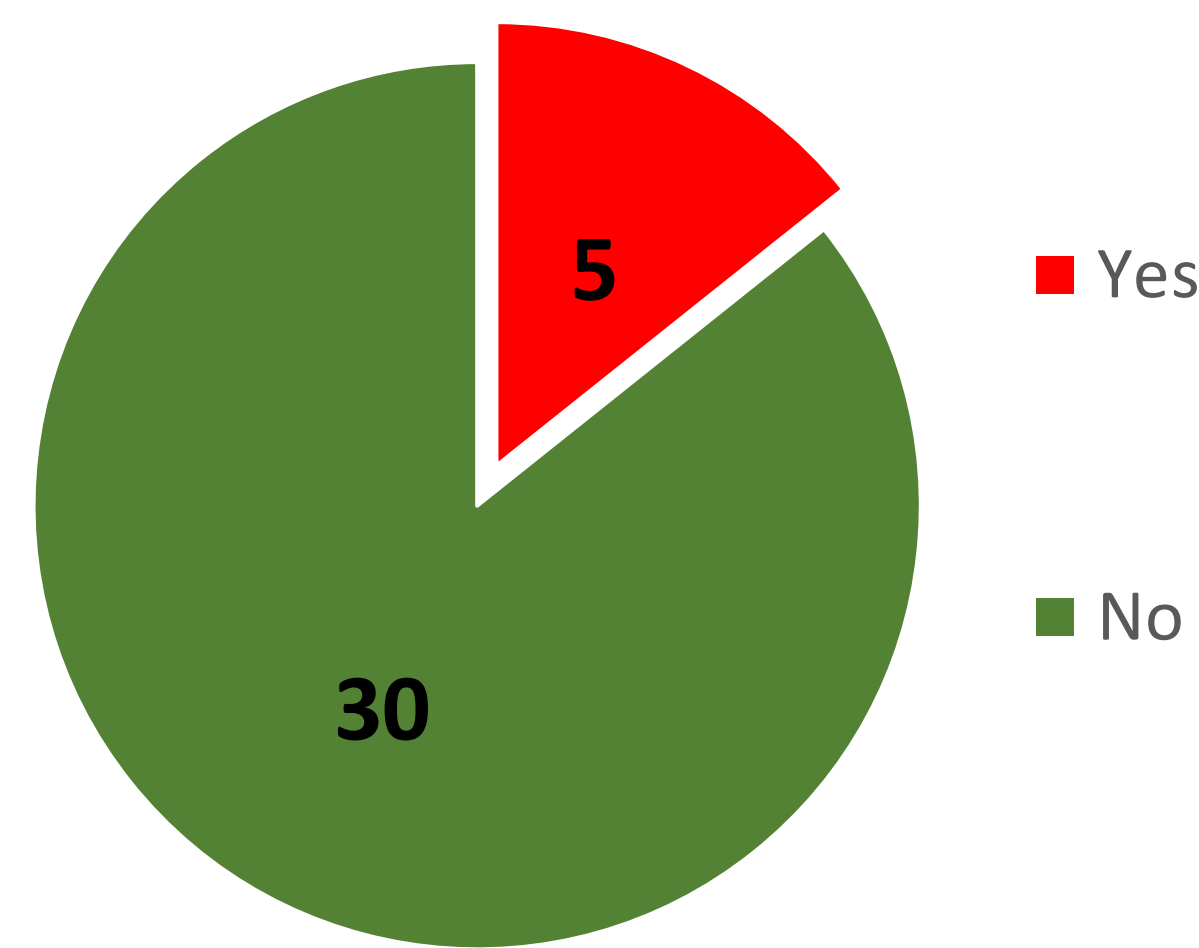


Figure 1: Rhinologists rated the quality of ChatGPT's responses from 1 (worst) to 10 (best). Average overall rating of **8.17 out of 10**

Did the Statements Contain Harmful Information?



Reasons for Harmful Flag:

- Nasal Decongestants should not be first line for stuffy nose due to rebound congestions¹
- Sinus surgery should not be completed for deviated septum alone²
- External facial swelling is not typical of sinus surgery³
- You can manage allergic symptoms to improve smell recovery⁴
- Narrow sinuses alone may not necessarily indicate balloon surgery⁵

DISCUSSION

- ChatGPT's responses varied in quality, with a mix of accurate information, minor errors, and occasionally harmful advice.
- Responses often lacked the depth in clinical decision making of experienced rhinologists, especially related to recommending surgery/procedures.
- Additional developments in AI, specifically tailored to rhinology is needed.
- The technology holds potential for improving patient education if developed with expert oversight in its training and implementation.

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