

# Characterization of Student Utilization and Perceptions of Artificial Intelligence Tools in Pharmacy Education

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## BACKGROUND

- Large language model Artificial Intelligence (AI) applications (e.g., ChatGPT, Bard, Bing AI) are becoming increasingly popular<sup>1</sup>
- These applications use a combination of deep learning and natural language processing to generate human-like text based on the question received<sup>2</sup>
- It is hypothesized that although student pharmacists use AI tools, education on appropriate use in educational or clinical context is lacking

## OBJECTIVES

- Characterize AI utilization among fourth-year (P4) pharmacy students
- Assess perceptions of AI tools in pharmacy education
- Identify opportunities to incorporate AI into the curriculum

## METHODS

- A 14-item anonymous survey was created and hosted in RedCap
- Distributed to all current P4 students at the Medical University of South Carolina (MUSC) in December 2023
- Participation in the study was voluntary, no incentives were offered to students, and investigators were blinded to the identity of participants
- Responses for each item were not required
- The term “AI tools” was used to refer to large language models including, ChatGPT, Bard, Bing AI, etc.
- Data was exported to Excel and descriptive statistics were performed to analyze findings
- This study was deemed quality improvement by the Medical University of South Carolina Institutional Review Board (IRB) and therefore was not subject to IRB review and approval

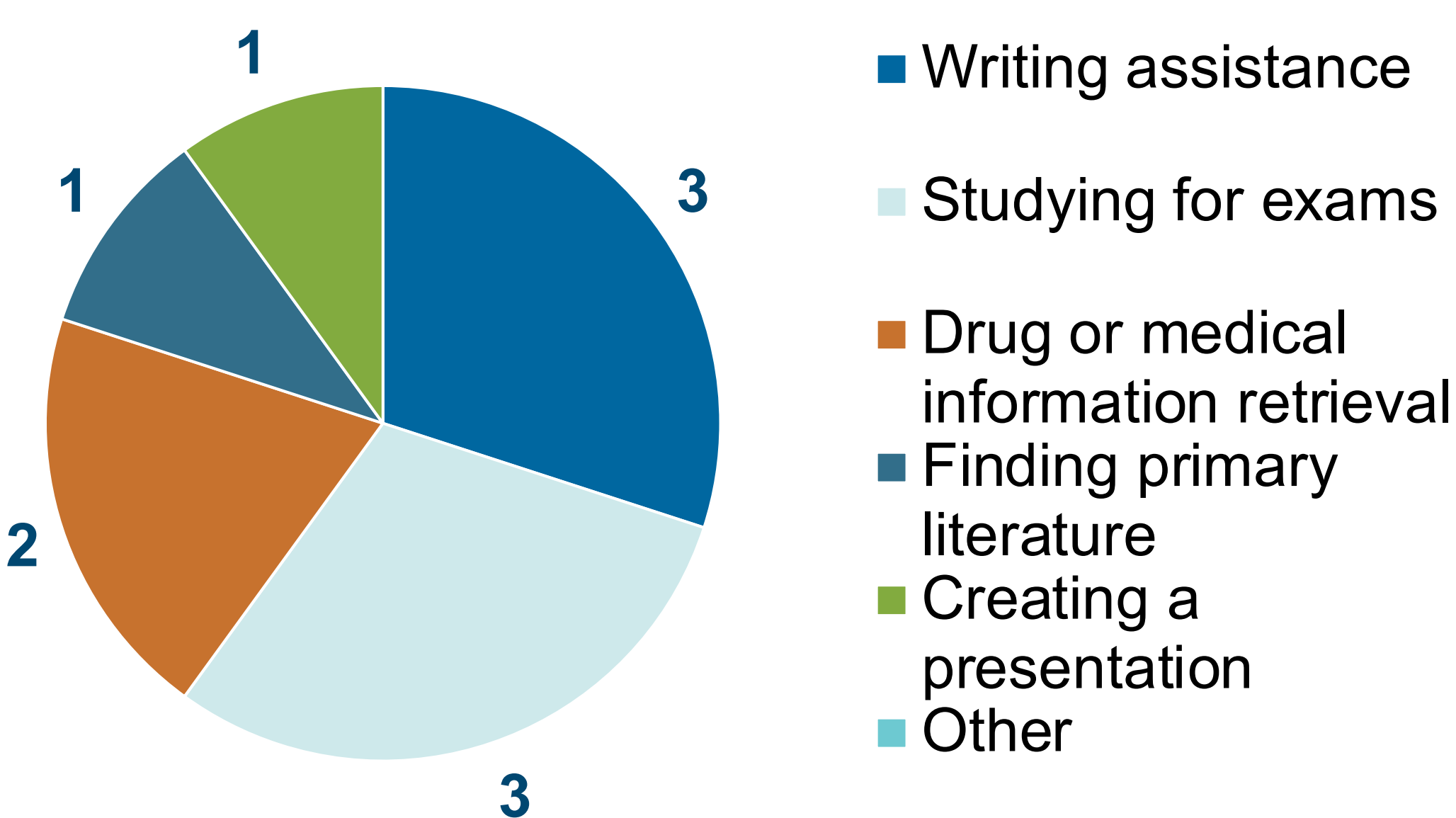
## RESULTS

The overall survey response rate was 55% (n=36/65)

### USE OF AI TOOLS

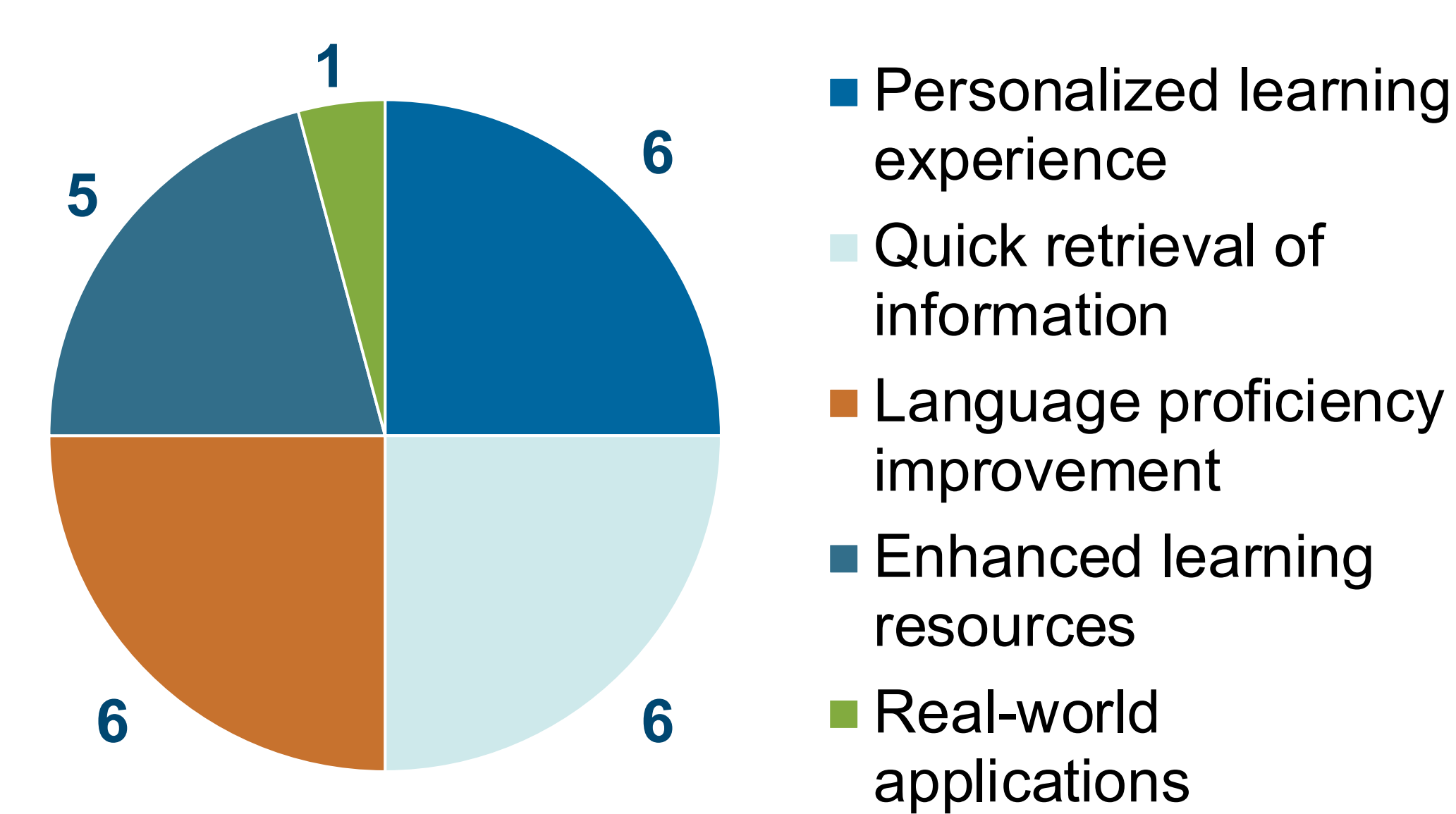
- 25.7% of respondents (n=9/35) reported using AI tools
  - 88.9% (n=8) for personal use
  - 44.4% (n=4) for educational use

Figure 1. Current utilization of AI tools for educational use\*



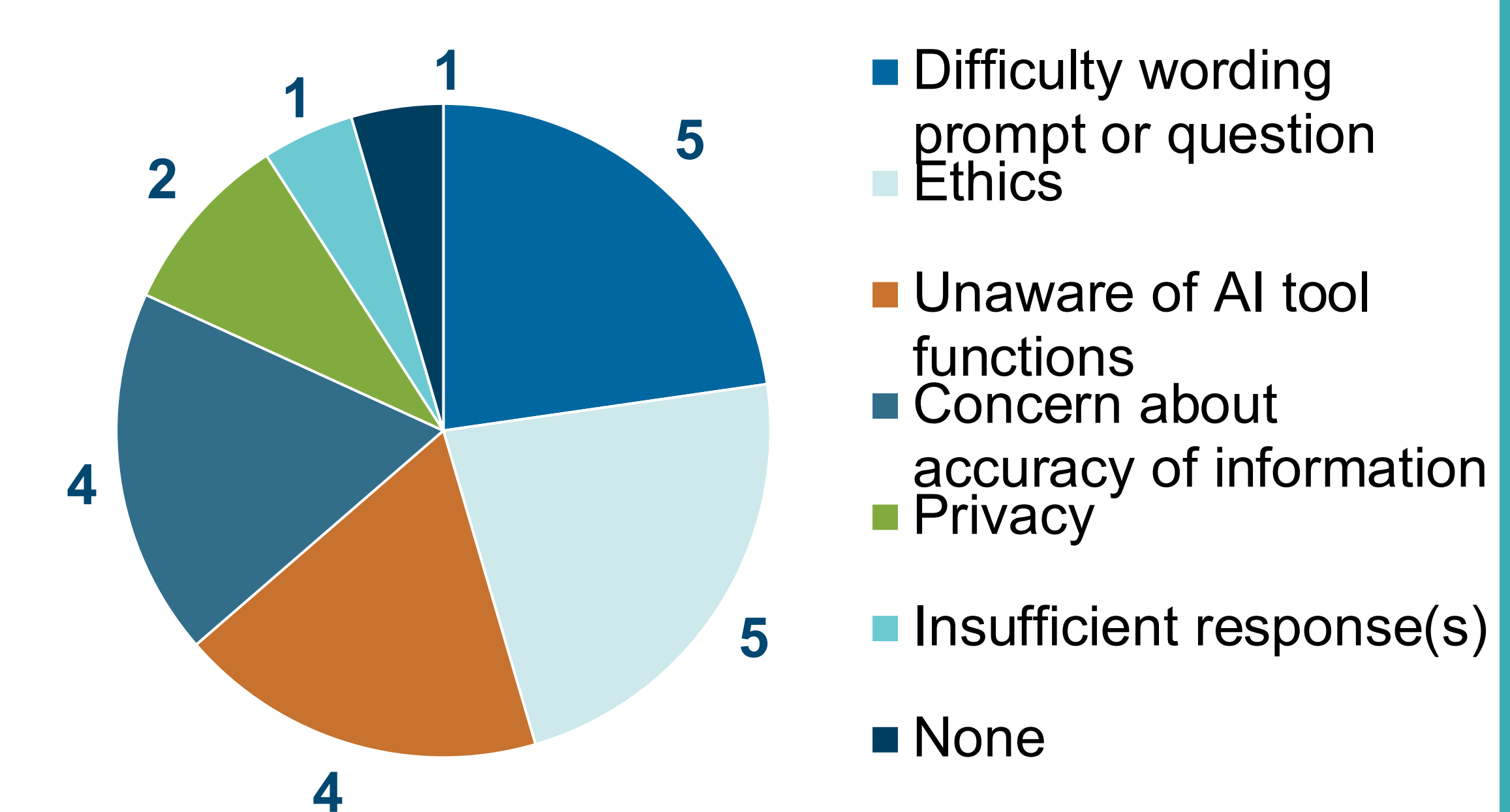
\*n = 9 unique respondents; #rounded for total percentage to equal 100%

Figure 2. How AI tools are helpful for educational use\*

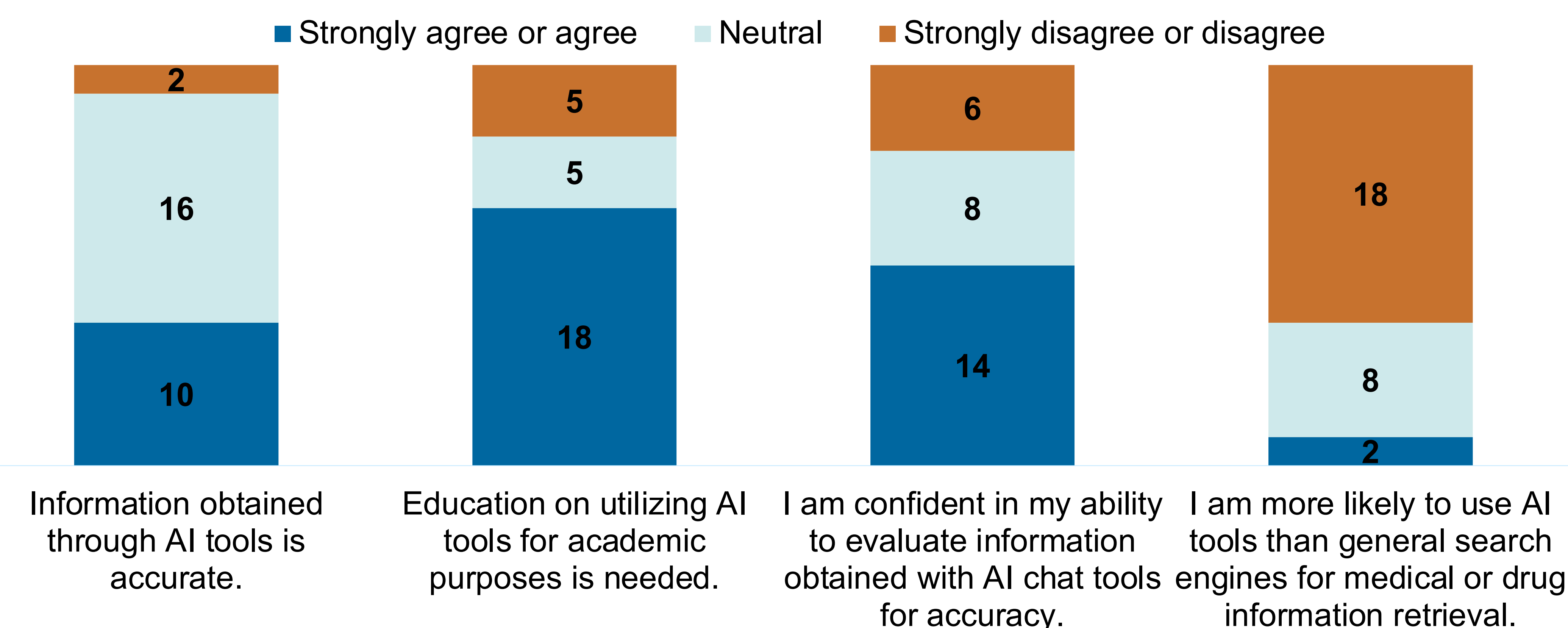


- 66.7% of respondents (n=20/30) reported being unsure if they would incorporate AI tools into future pharmacy practice
  - 50.0% (n=15) reported education on use would influence future use of AI tools

Figure 3. Barriers with use of AI tools\*\*



### STUDENT PERCEPTIONS\*\*

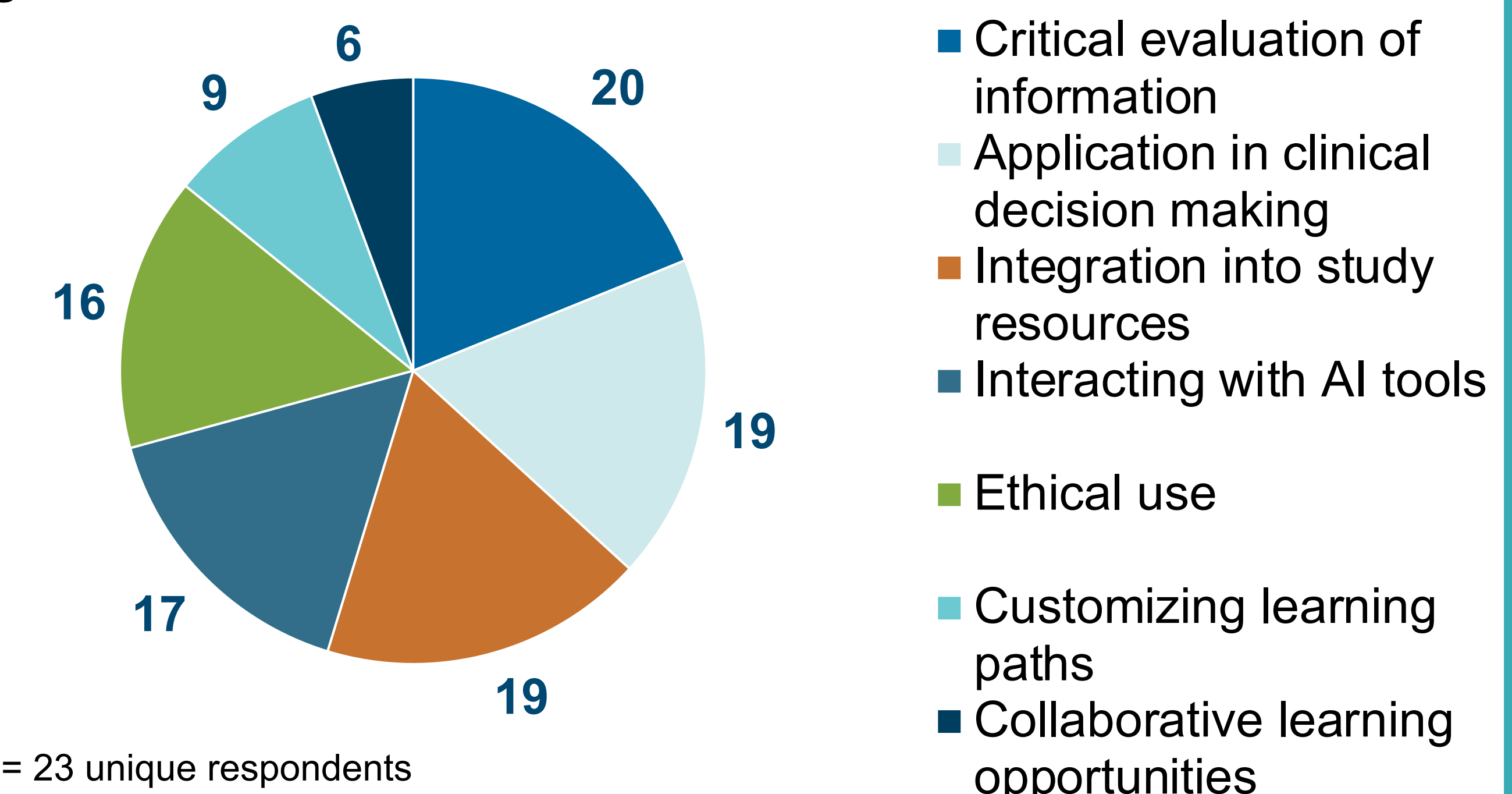


\*\*n = 28 unique respondents

### AI TOOLS EDUCATION

- 76.5% of respondents (n=26/34) reported they have not received guidance on appropriate use of AI tools

Figure 4. Areas where more education is desired^



^n = 23 unique respondents

## LIMITATIONS

- Small sample size
- Potential for response and self-selection bias
- Questions were primarily close-ended, limiting ability to capture respondents' full experiences
- AI is a rapidly evolving topic, which makes capturing current utilization and perceptions difficult

## CONCLUSIONS

- A small percentage of students are currently using AI tools for educational purposes
- Opportunities exist to optimize how students could use AI tools for educational purposes
- Education regarding use of AI tools is needed including clear guidance and education on acceptable usage for academic purposes as well as critical appraisal of AI tool output
- Future studies examining the impact, effectiveness, and areas of improvement with the use of AI tools in pharmacy education is needed

## REFERENCES

1. Shah NH, Entwistle D, Pfeffer MA. Creation and Adoption of Large Language Models in Medicine. JAMA. 2023 Sep 5;330(9):866-869.
2. Gottlieb S, Silvis L. How to Safely Integrate Large Language Models Into Health Care. JAMA Health Forum. 2023 Sep 1;4(9):e233909.