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<u>Presently</u> :

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<u>Research Activities :</u>

Ongoing researches = 3

Artificial Intelligence Chatbots in Indian Health Care System

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Presentation overview

- Background
- Need for the study
- Objectives
- Study Design
- Methods
- Results
- Observations
- Discussion
- Conclusion

Background

- AI chatbots - transforming healthcare.

- In countries like India, potential game-changer.

- Focus on more complex cases, improving the overall efficiency of healthcare delivery.

1) **Sundararaman, T., et al. (2020).** *Artificial Intelligence in Healthcare: Opportunities and Challenges in the Indian Context*. Journal of Health Informatics in Developing Countries.

Need for the study

- AI in healthcare - ethical concerns

- India - unique challenges:
  ➢ Varying literacy levels
  ➢ Access to digital infrastructure
  ➢ Comfort with technology

2) https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf

Objectives

1. Estimate: proportion of individuals using AI chatbots in routine patient-care work

2. Elicit: attitudes, perceptions and challenges - use of AI in healthcare practice.

Design - overview

- Design : Cross-sectional survey

- Sampling frame : Doctors working in educational institutes across South India

Ethics

- Institutional Ethics Committee approved (IEC2 – 531/2024)

- Written informed consent collected

- CTRI/2024/10/075937

Eligibility criteria

Inclusion Criteria

• Indian healthcare professional of any biological sex ≥ 18yrs

Exclusion Criteria

• Incompletely filled forms

• Failed to answer the "trap" question

• Working abroad in the last 6 months.

• Language or technical barriers in using digital media

Methodology

- Data collection - self-administered online questionnaire

  15 min, 3 sections

  (Demography, AI chatbot at workplace, Perceptions)

- Shared on platforms like WhatsApp, LinkedIn, Facebook, Twitter, and email, after Institutional Ethics Committee approval.

Sample size

- Based on a recent report (3)

- Assumed estimated proportion (p) of having used an AI tool is approximately 75%.

- α error = 5%

- power = 80%

- absolute precision (d) = 5%

- Estimated sample size using the Cochran's formula :

$$(Z\ 2p[100 - p])/d^2$$

  N = 375

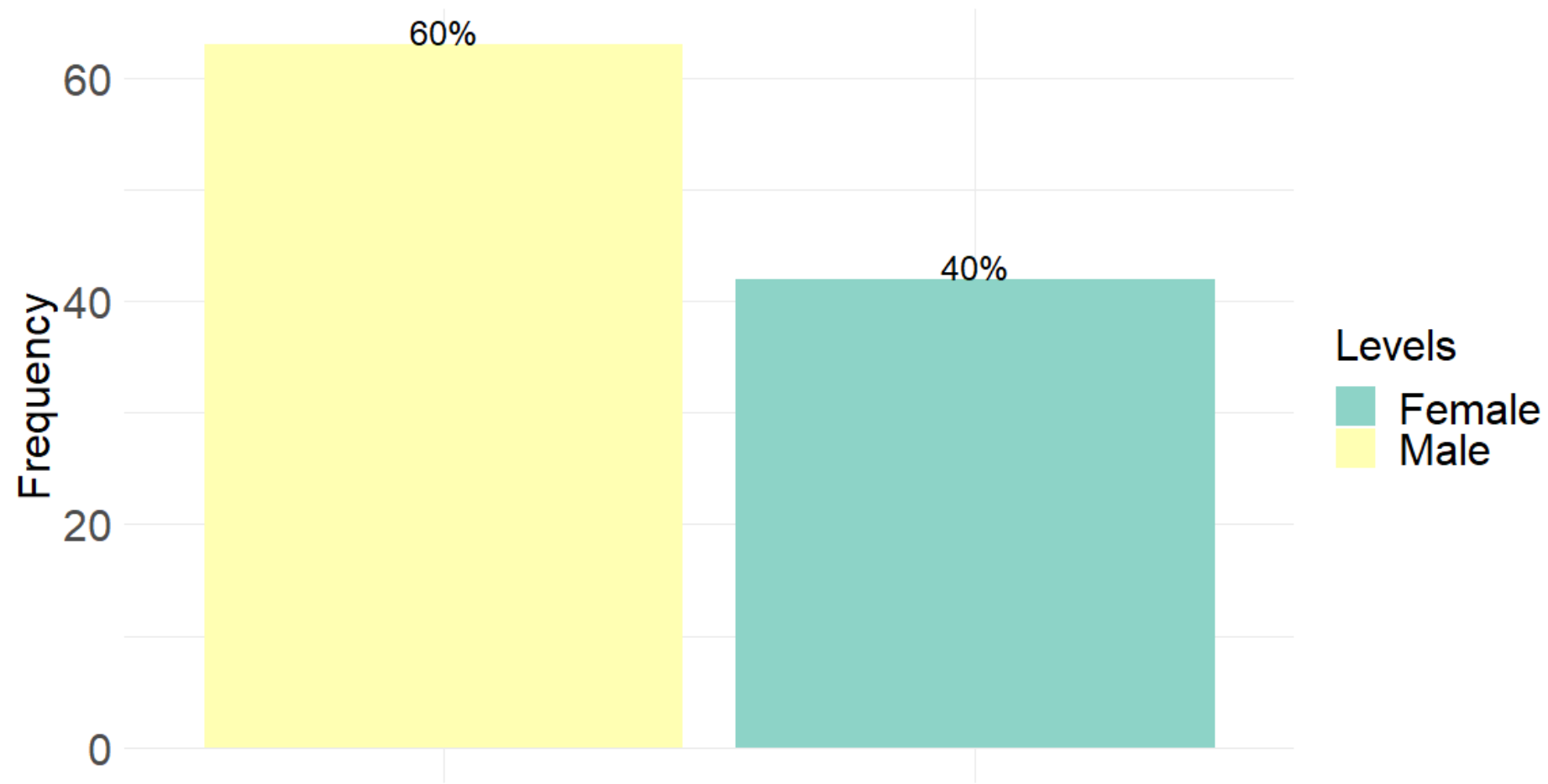- Accounting for non-responders (4), the sample size is rounded off to 400.

3) Available from: https://www.accenture.com/content/dam/accenture/final/accenture-com/document- 2/Accenture-Reinventing-MedTech-With-Intelligent-Technologies.pdf

4)Cochran WG. Sampling techniques. 3rd ed. New York: John Wiley & Sons; 1977.
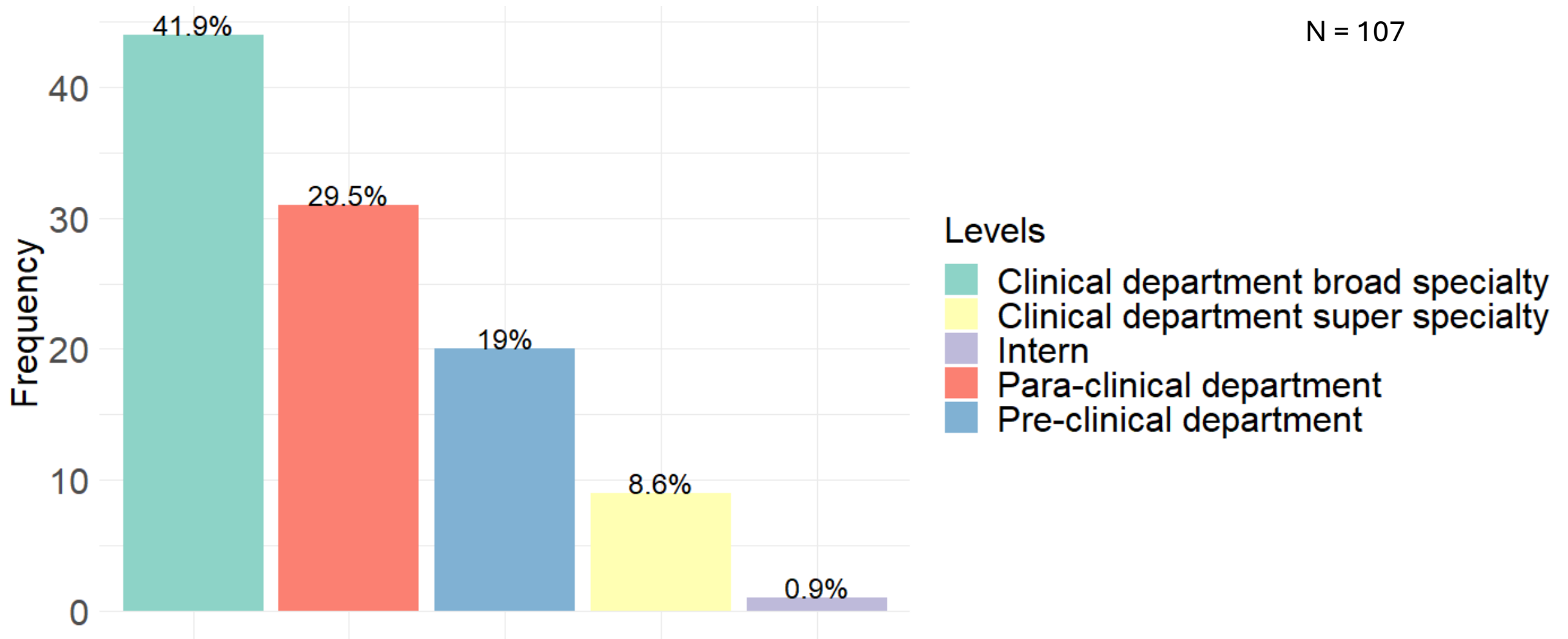
Statistical Analysis

- Descriptive statistics: demographics, knowledge, attitudes, perceptions.

- Continuous data: mean ± SD if normally distributed, or as median [Q1–Q3] if not, using Shapiro-Wilk's test for normality.

- Categorical variables and AI usage prevalence: frequencies, percentages, and 95% CI.

- Statistical analysis: SPSS (≥ version 20.0), significance set at $p < 0.05$.

Results – Biological sex distribution

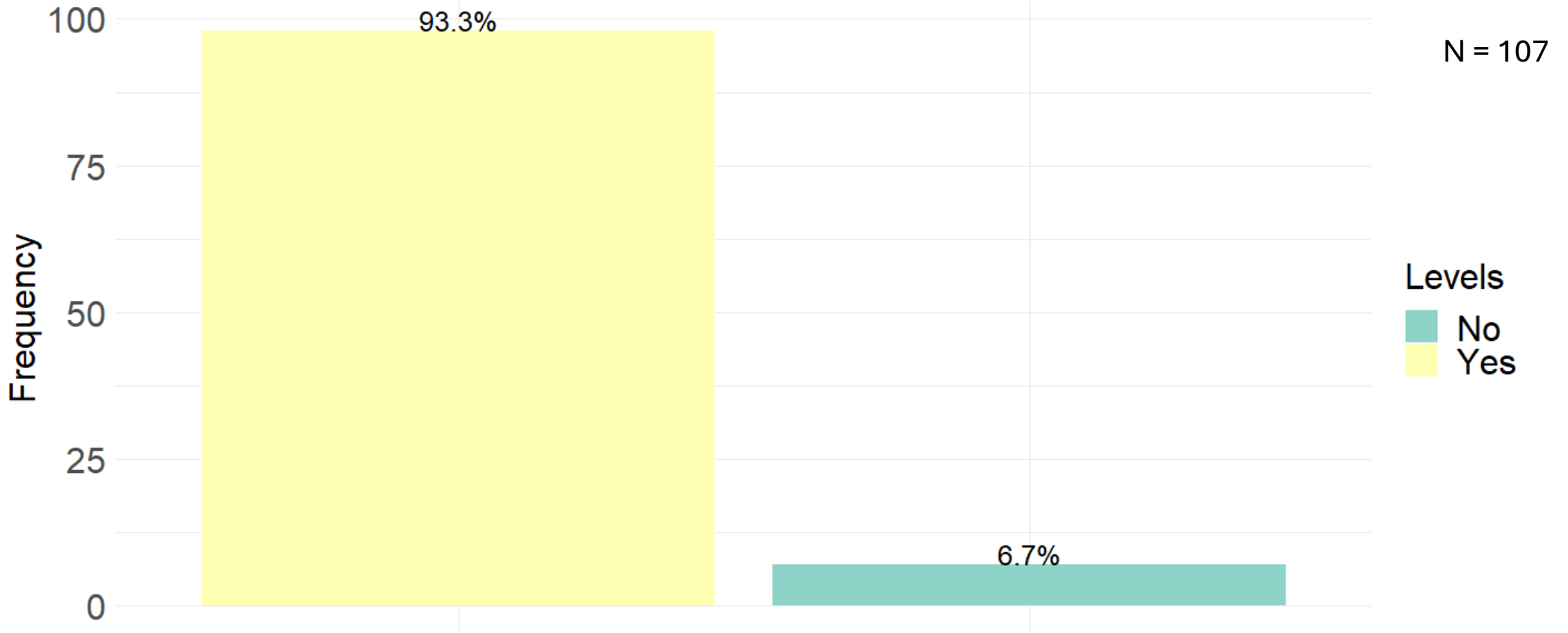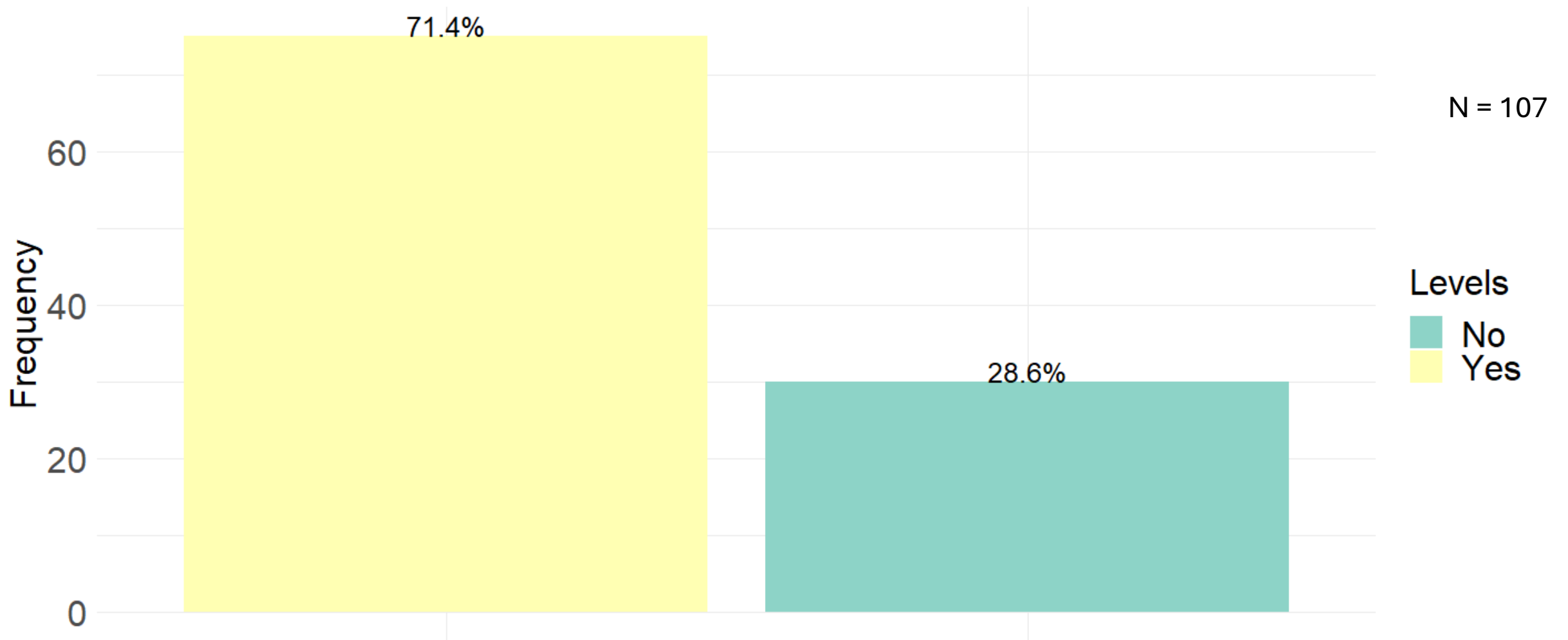N = 107

Results - Identity distribution

N = 107

Levels
- Clinical department broad specialty
- Clinical department super specialty
- Intern
- Para-clinical department
- Pre-clinical department

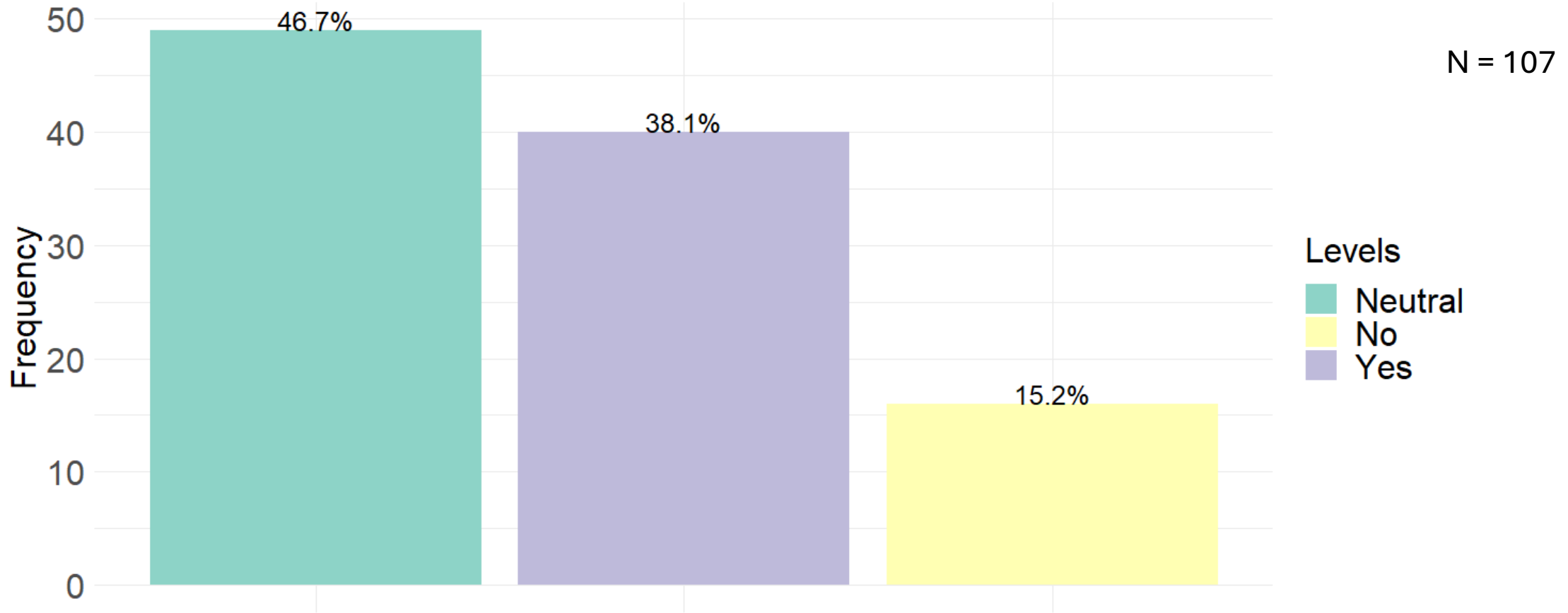# Results - Awareness of AI Chatbots

N = 107

Levels
- No
- Yes

Results - Currently utilizing AI Chatbots at work

N = 107

Result - Workplace conducive to use of AI
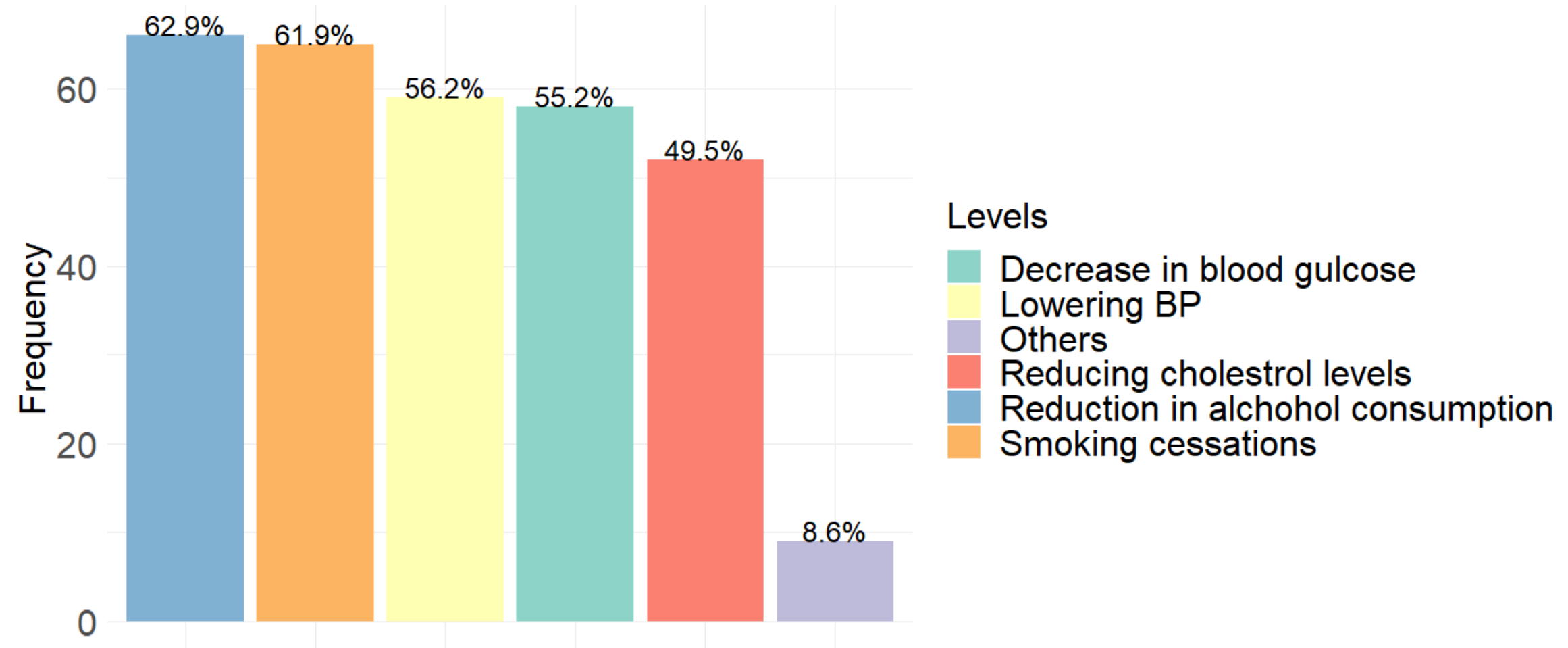
Workplace subscribed to paid AI Chatbots

N = 107

83.8%

16.2%

Frequency

75

50

25

0

Levels
No
Yes
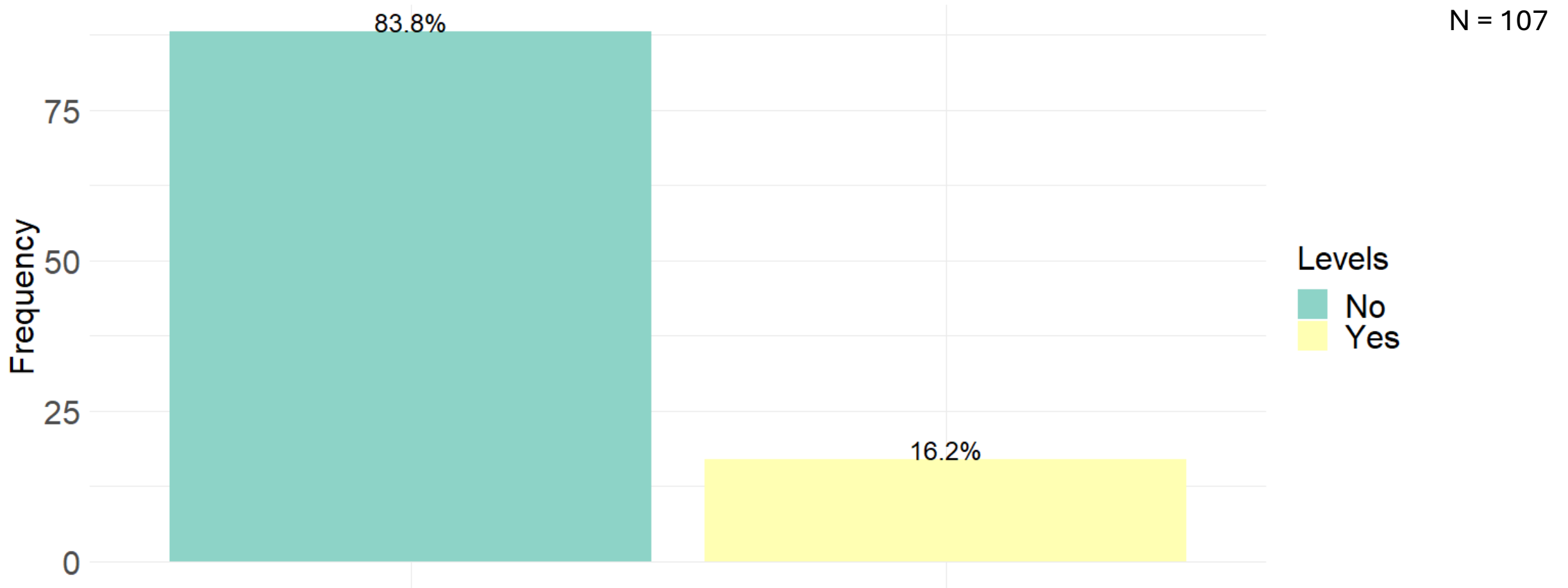
Resources used for patient care
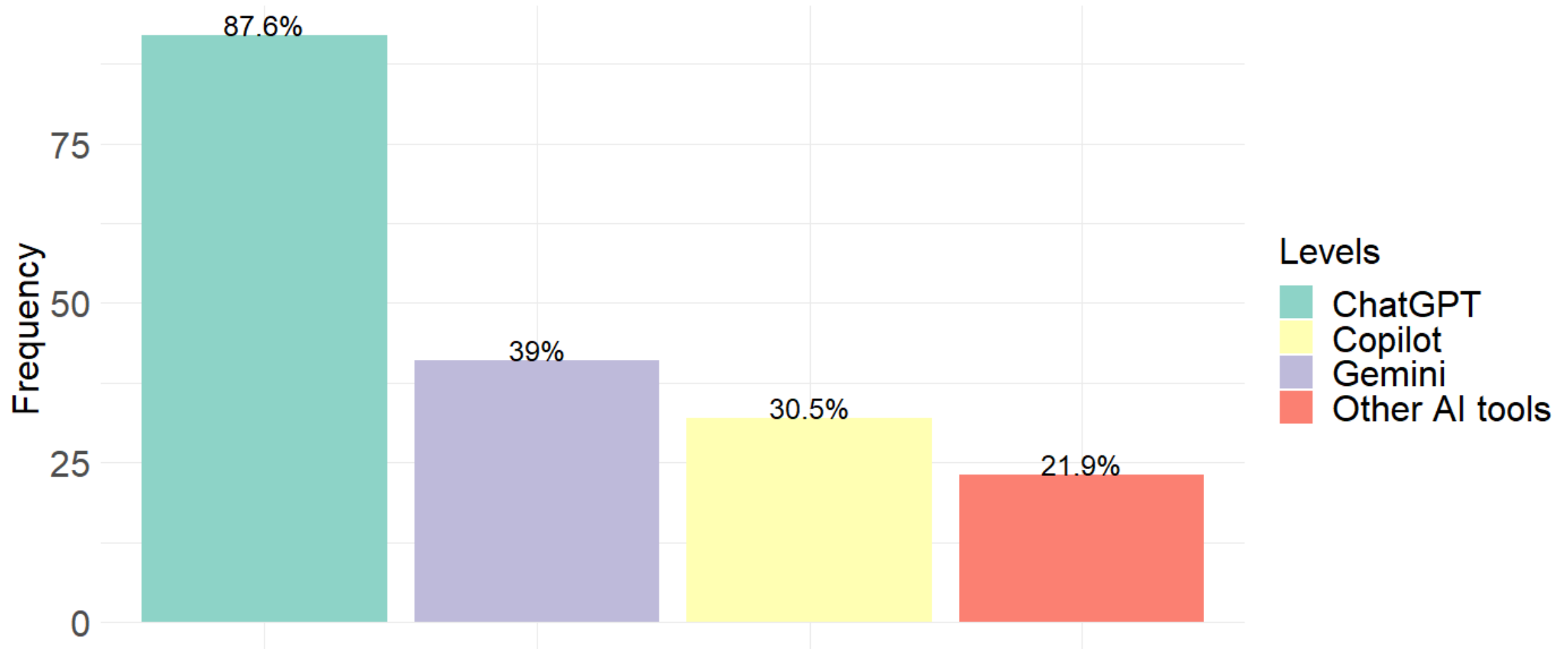
Lifestyle improvement by AI Chatbots

N = 107

N = 107

Distribution of Reasons for Using AI Chatbots
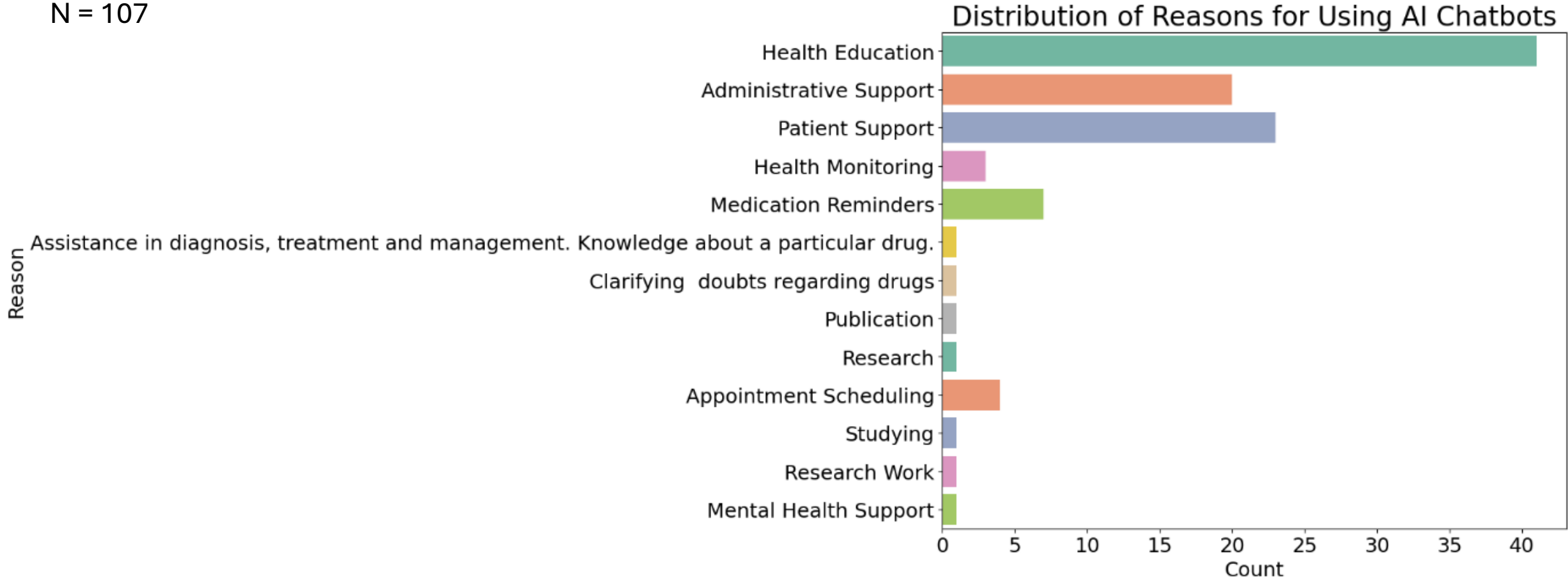
Results (1/2)

- Most concerning: Privacy

  ONLY 27% - "chatbots ensured confidentiality of patient information".

- 69.52% - effective reduction in manpower in healthcare

- 43% - "chatbots : ~~emotionally sensitive care~~."

Results : (2/2)

- 58% : diminished meaningful patient-provider interactions, trust and comprehensive care.

- Safety concerns ⟶ significant; 60% : chatbots' limited information might harm patients

- 42.86% fearing delayed hospital visits due to reliance on chatbots.

Discussion

- Naik N *et al.* Front Surg 2022 Mar 14:9:862322 – discuss privacy issues with use of AI chatbots

- Coghlan S *et al.* Int J Soc Robot. 2022;14(10):2095-2108 – humanistic care by robots

- Sundararaman et al. (2020) – AI chatbots in reducing the workload of healthcare professionals ; improving access to primary care.

Conclusion

- Proportion of doctors using AI chatbots in routine patient-care work: 71.4% actively using it

- Patient trust.

- Misinformation ⟶ health outcomes

- Rigorously train on diverse data-sets : ~~biases and errors~~

- ? role in sensitive areas like mental health support, where empathy and nuanced communication are critical

Thank You

References

1) **Sundararaman, T., et al. (2020).** *Artificial Intelligence in Healthcare: Opportunities and Challenges in the Indian Context*. Journal of Health Informatics in Developing Countries.

2) https://www.niti.gov.in/sites/default/files/2023-03/National-Strategy-for-Artificial-Intelligence.pdf

3) https://www.accenture.com/content/dam/accenture/final/accenture-com/document- 2/Accenture-Reinventing-MedTech-With-Intelligent-Technologies.pdf

4) Cochran WG. Sampling techniques. 3rd ed. New York: John Wiley & Sons; 1977.