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Background

Paleogenomics Research and Indigenous Communities

- aDNA research with Ancestors *NOT* considered human subject research (i.e., not subject to human research guidelines)
- Currently, *NO* robust policies for conducting research with Ancestors, especially related to DNA sequenced¹
- Concerns about who has oversight, and the use of data and samples¹
- Disturbing Ancestors²
- Perspectives of Indigenous community members are rare on topic

Definitions

- **Ancient DNA (aDNA):** DNA from degraded biological source materials³
- **Ethics:** "Basic guiding moral principles, including right and wrong."⁴
- **Genomics:** The study of a person's entire genome
- **Paleogenomics:** Collection and analysis of genomic data from aDNA

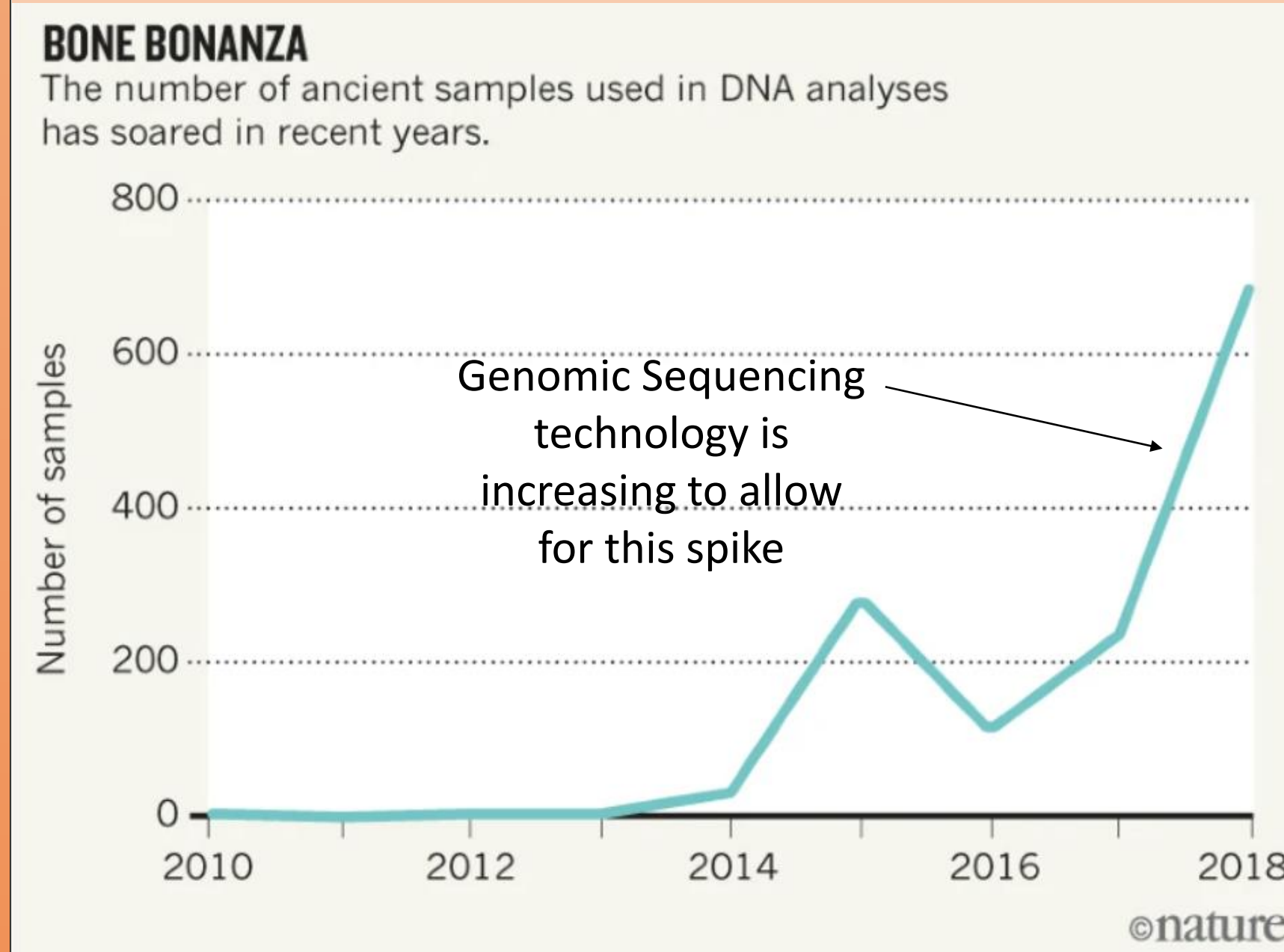


Figure 1.⁵ – The number of analyzed aDNA samples has increased recently.

Methods

Recruitment
Indigenous participants recruited by:
Social Media

- Twitter
- Facebook

Email

- Sent to ~3,900 email addresses

Survey collection
Online survey through RedCap
Nov. 2020 – June 2021
Total # of respondents =107
Exclusion Criteria

- Participants who answered less than 88% of the questions
- Non-Indigenous

Analysis
Quantitative:

- Statistical analysis using R software
- Data management and frequencies using Microsoft Excel

Qualitative:

- Thematic analysis of open-ended questions by multiple coders

Ethical Concerns

Should we and how do we conduct ethical research with our Ancestors?

- What is the right and wrong way?
- What considerations are necessary?
- How to respect our Ancestors?

Ethical concerns we should address

- Community research harms
- Culturally respectful handling of our Ancestors
- Artifact and remain destruction
- Data storage
- Future management

References

1. Fleskes et al. *Annual Review of Genomics and Human Genetics*, 23(1), 627-652.
2. Claw et al. *Human Biology*, 89(3), 177-180.
3. Hummel. *Handbook of Paleoanthropology*, 763-790.
4. Cortez et al. *Journal of Social Archaeology*, 21(2), 157-178.
5. Fox and Hawks. *Nature*, 572(7771), 581-583.

Results

Perceived existence of benefits of aDNA research

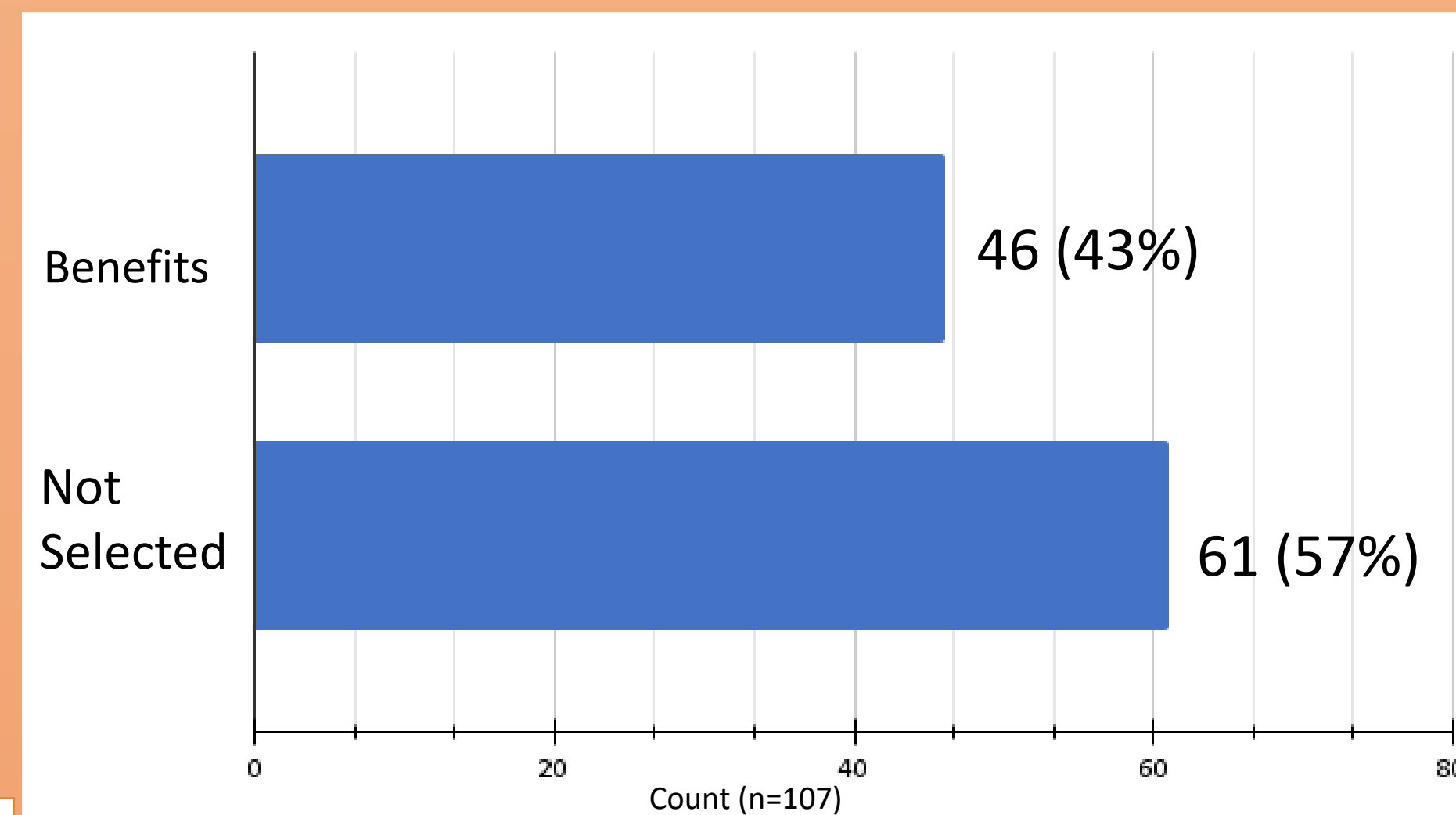


Figure 2. The majority did not identify benefits.

- Respondents' Perceived Benefits
- History, origins, and relationships between ancestor and modern [descendants]
 - New science knowledge
 - Community based participatory research approaches
 - Indigenous knowledge/science
 - Indigenous rights and sovereignty
 - Increase sample representation

Perceived existence of negative consequences of aDNA research

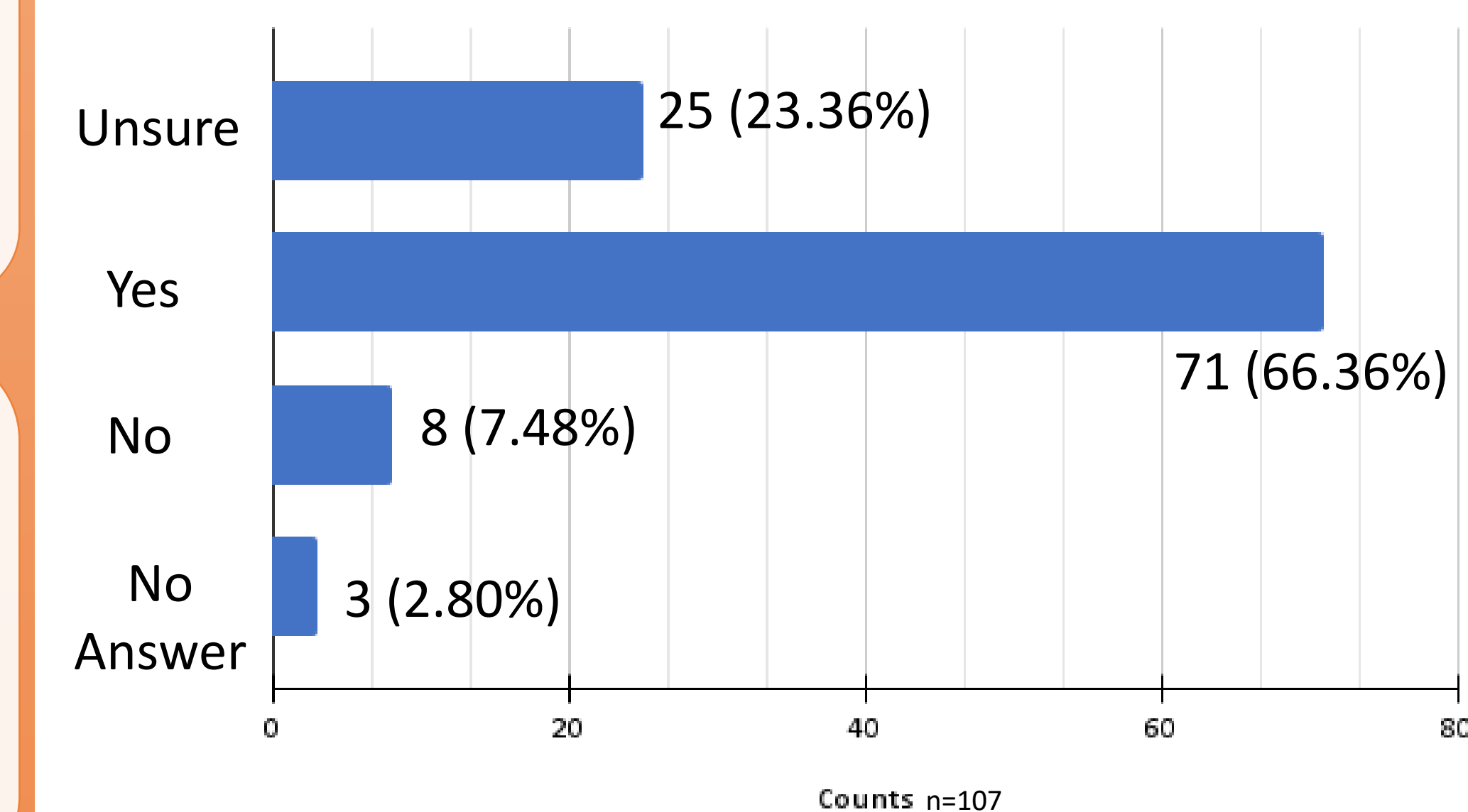


Figure 3. The majority identified various negative consequences.

- Respondents' Perceived Negative Consequences
- Challenge identity or origins [of Indigenous peoples]
 - Community engagement
 - Cultural considerations
 - Harms and Risks [to Indigenous communities]
 - Misuse of genetic data
 - [Tribal] Sovereignty
 - Diverse perspectives
 - Data used in criminal justice system

Discussion

- Completed survey of 107 Indigenous individuals
- Conducting analysis of differential survey responses by respondent demographics
 - How do respondents of different backgrounds perceive potential harms of aDNA research?
 - *i.e., those respondents who might have previously been involved in aDNA research and their perceived views on benefits or the negative consequences of aDNA research.*
- Qualitative analysis:
 - Respondents concerned about conducting aDNA research
 - Survey responses address past harms of genetic research within Indigenous communities
 - *Challenging identity and origins of Indigenous people can invalidate cultural knowledge*

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