# **What Adults Will (and Won't) Do to Prove Their Age**: Empirical Evidence from a Deceptive Web Experiment

**Yanzi Lin**

*Joint work with Cheng Zhang, Madelyne Xiao, Lorrie Faith Cranor, and Sarah Scheffler*



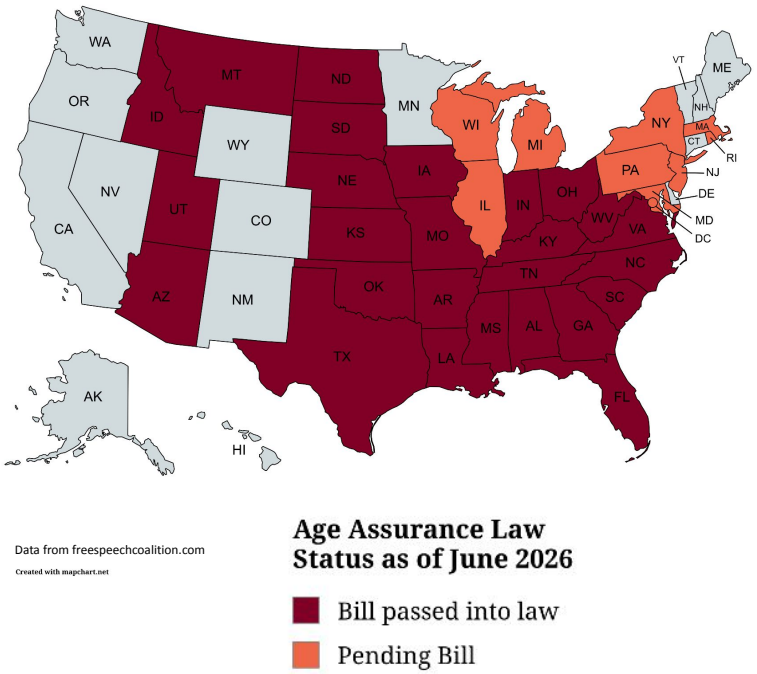




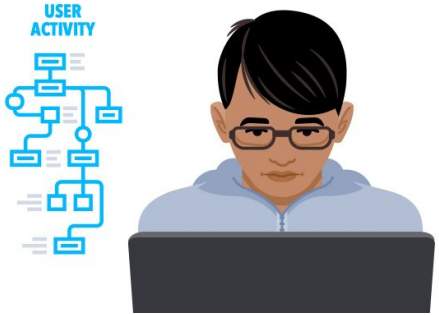
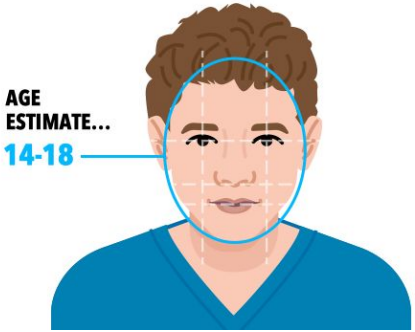
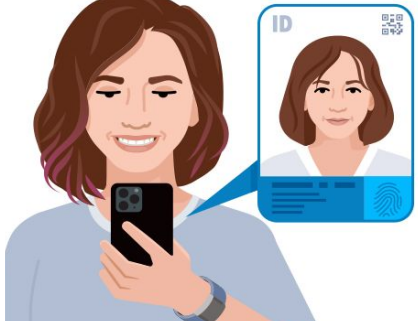


# Age assurance requirements part of global policy effort to protect youth online

- Governments push for strong “age assurance” as the solution to protect minors from accessing harmful content
- Global youth protection laws: 26 U.S. states, UK’s Online Safety Act, EU’s Digital Services Act etc.
- FTC: will not pursue COPPA enforcement against operators that collect personal information solely for age verification



# Common age assurance/verification approaches

| **Declaration**<br>age-gating | **Inference**<br>behavioral/account | **Estimation**<br>facial characterization | **Verification**<br>ID + biometric |
|---|---|---|---|
|  |  |  |  |

Source: Future of Privacy Forum infographic, January 2026

# What will adults do when asked to age verify?

- Prior studies show support for age verification to protect kids, but concerns about implementation effectiveness and privacy
- But what will adults actually do in practice when asked to age verify?
- We provide empirical evidence on how adults actually respond to age verification in a realistic access context



# Research Questions

**RQ1:** How do different age verification methods affect users' decisions to access R-rated romantic media?

**RQ2:** How do disclosures of data handling practices affect those decisions?

**RQ3:** What are users' perceptions of and attitudes toward different age verification mechanisms?

# Research Questions

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**RQ2:** How do disclosures of data handling practices affect those decisions?

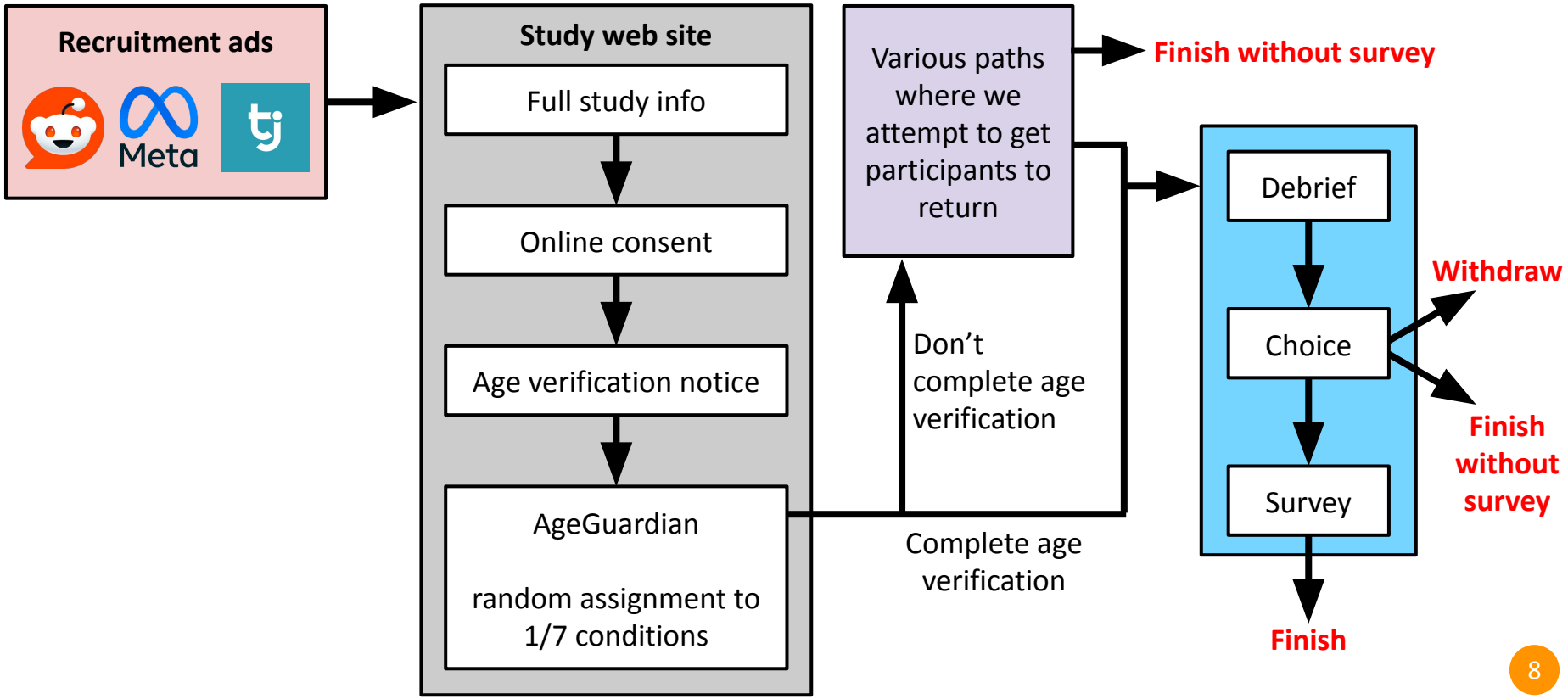
**RQ3:** What are users' perceptions of and attitudes toward different age verification mechanisms?

# Research Questions

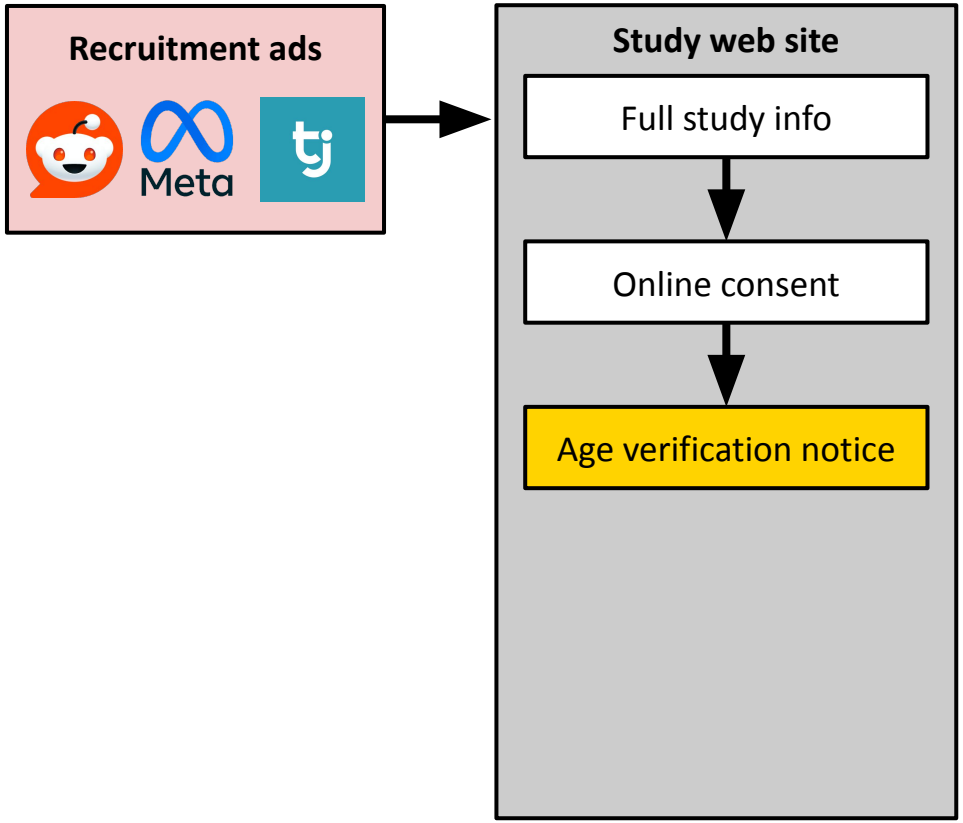
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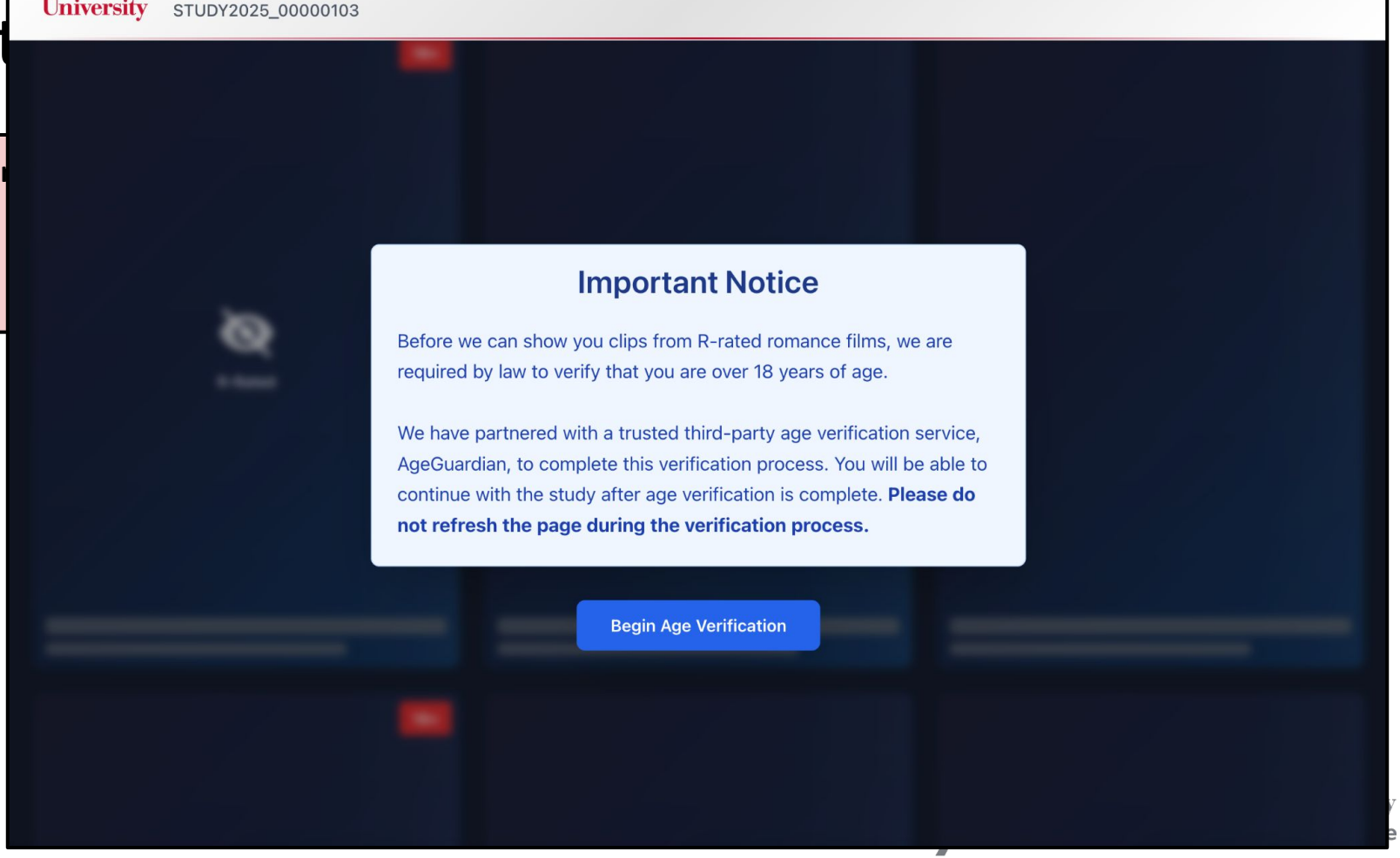

Recruitment ads
Meta
Study web site
Full study info
Online consent
Age verification notice
AgeGuardian
random assignment to 1/7 conditions
Various paths where we attempt to get participants to return
Finish without survey
Don't complete age verification
Complete age verification
Debrief
Choice
Survey
Withdraw
Finish without survey
Finish

# Study info → consent → age verification notice

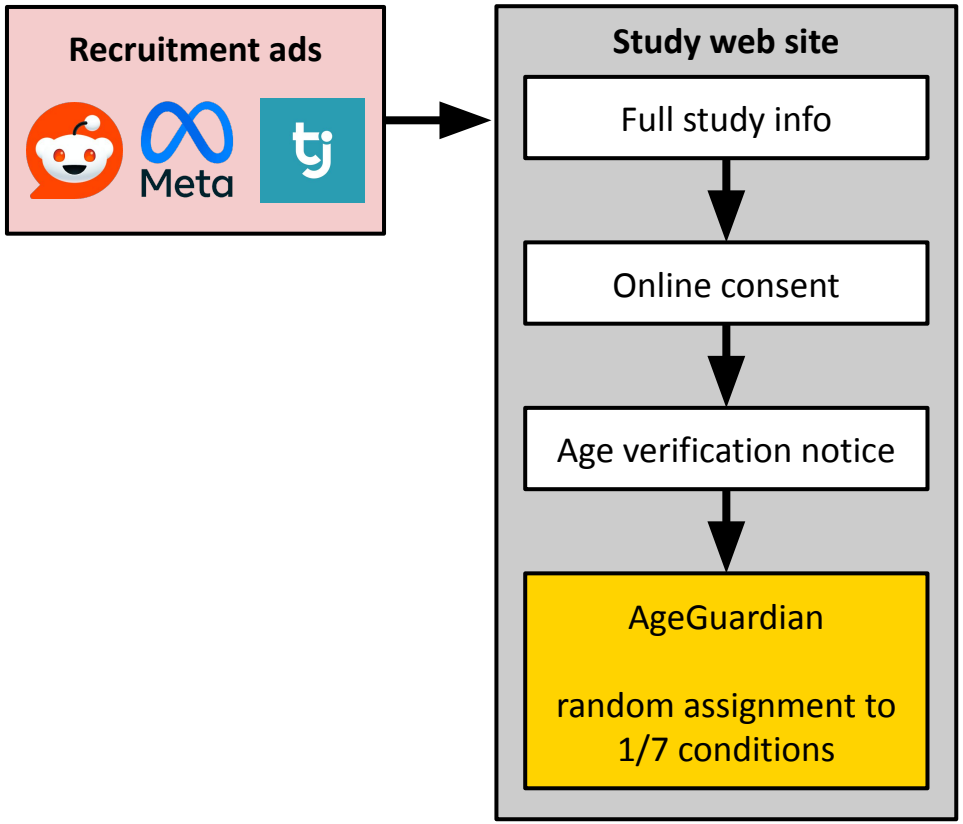


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Recr


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CMU R-Rated Romantic Media Study
STUDY2025_00000103
Important Notice
Before we can show you clips from R-rated romance films, we are required by law to verify that you are over 18 years of age.
We have partnered with a trusted third-party age verification service, AgeGuardian, to complete this verification process. You will be able to continue with the study after age verification is complete. Please do not refresh the page during the verification process.
Begin Age Verification

# Random assignment to 1 of 7 conditions

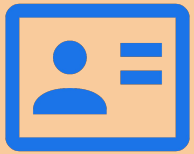


# 5 experimental conditions for RQ1

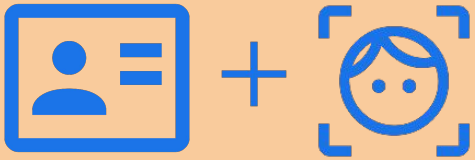
**RQ1:** How do different age verification methods affect users' decisions to access R-rated romantic media?



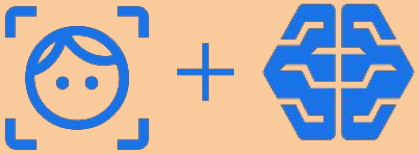
Checkbox Self-Attestation



Gov-ID



Gov-ID with Liveness Check for Identity Matching



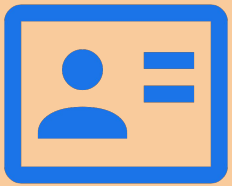
AI Age Estimation



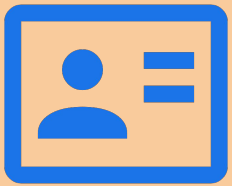
Email-Based Age Estimation

# 3 experimental conditions for RQ2

**RQ2:** How do disclosures of data handling practices affect those decisions?

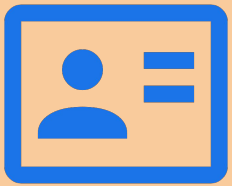


Gov-ID



Gov-ID with Simple Reassurance

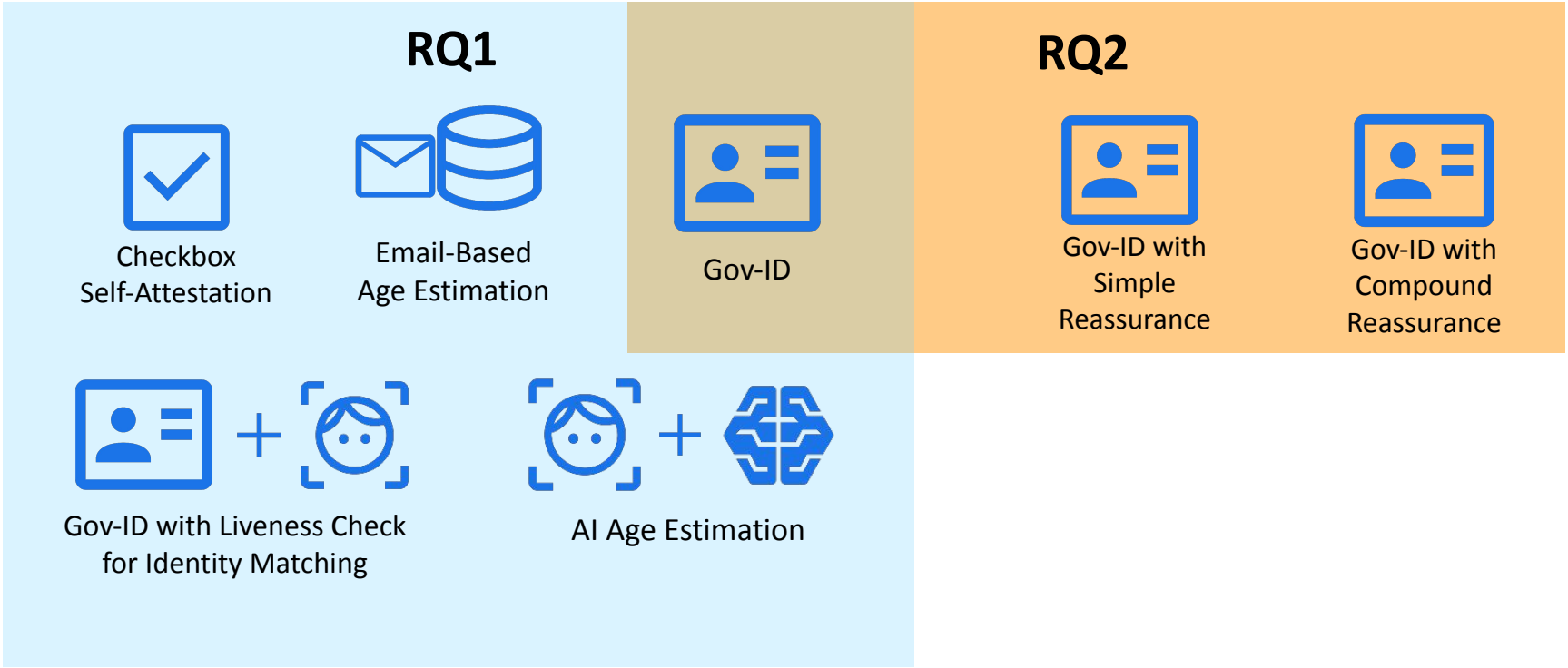
"Your data will be used only for age verification."



Gov-ID with Compound Reassurance

"Your data will be used only for age verification. We will delete your identifying information after access has been granted."

# 7 conditions total



# 7 conditions total



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Self-At



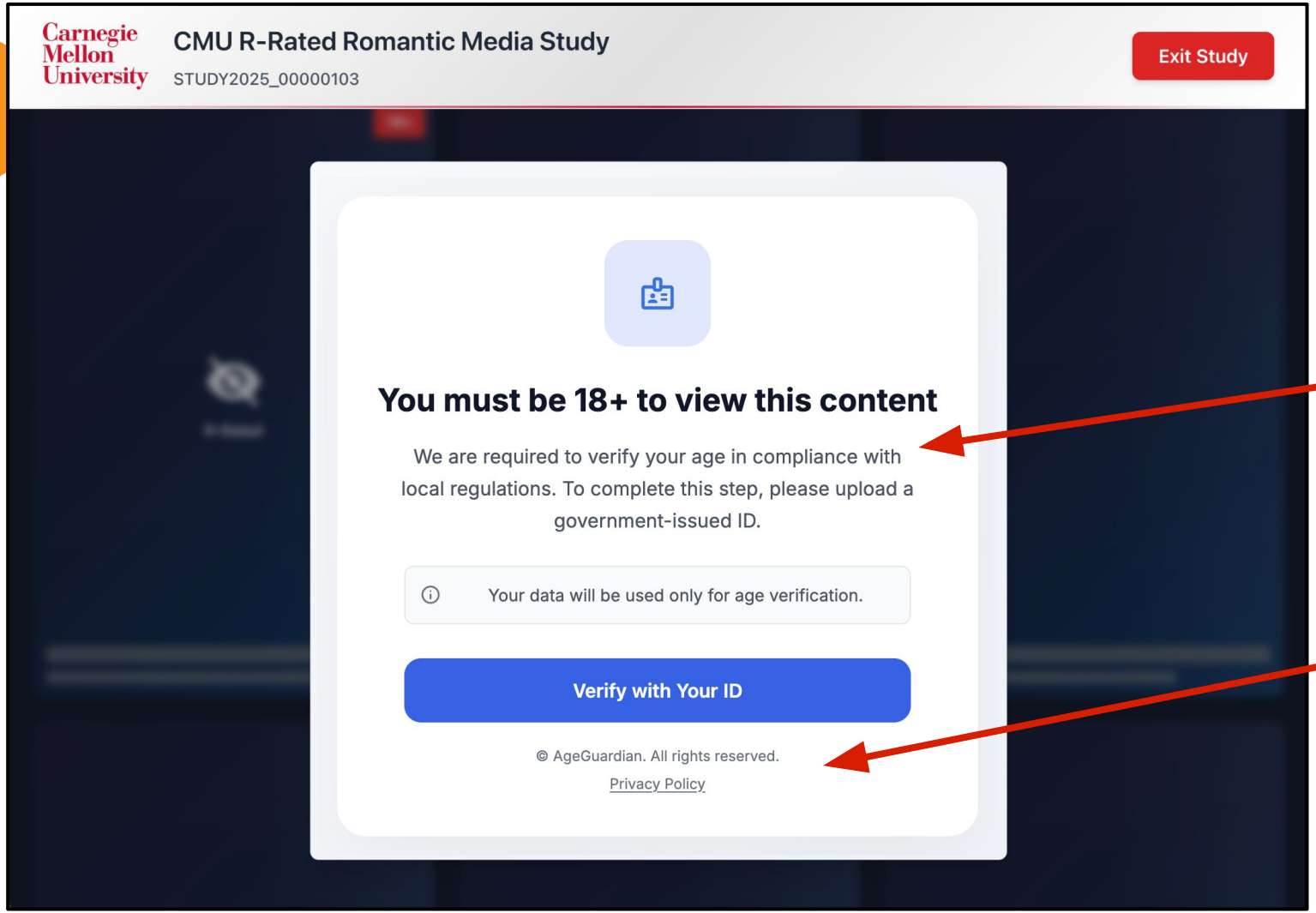
Gov-ID
for Identity Matching



ID with
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surance

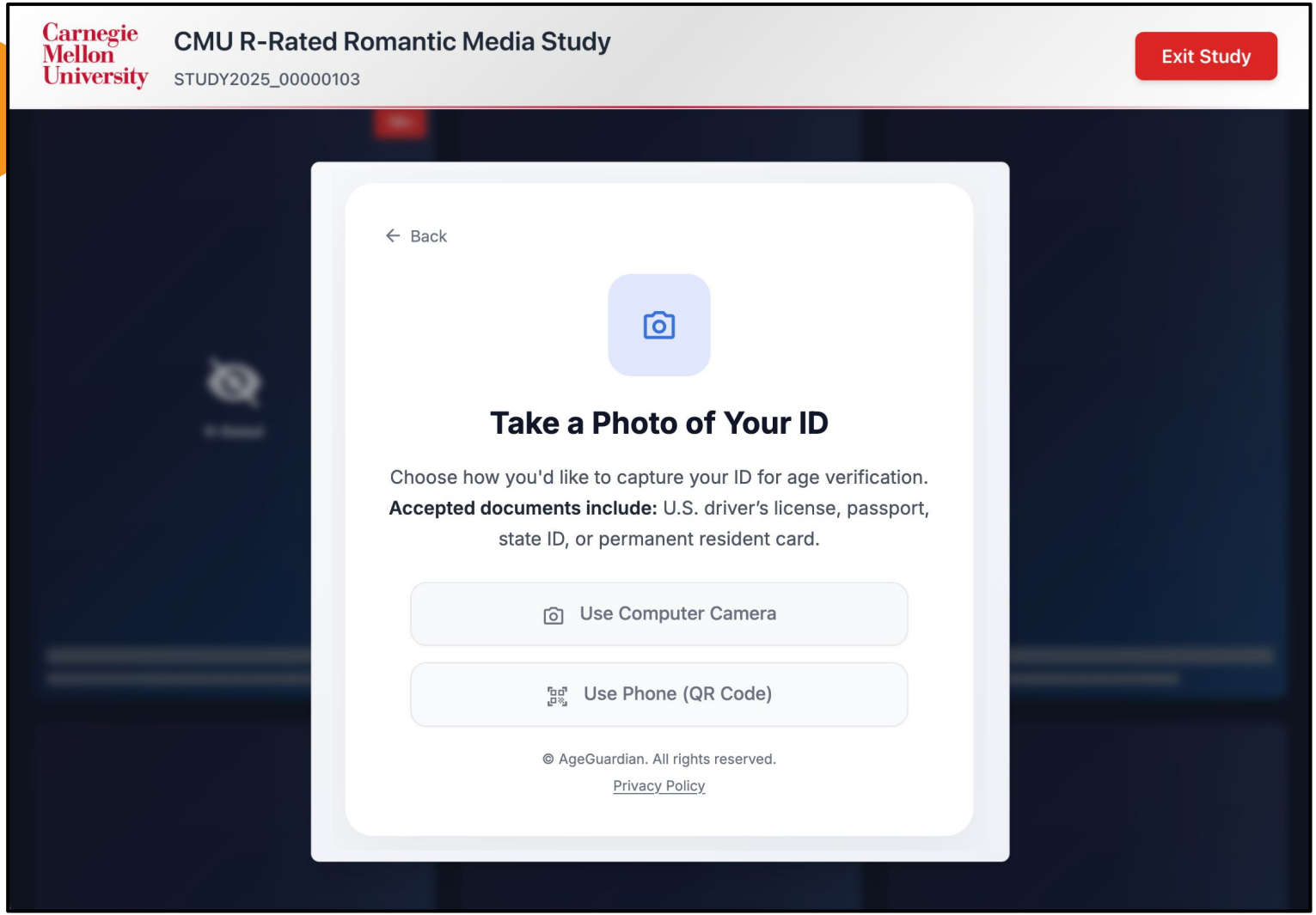
**Verification was simulated:**

- No ID photos/selfies were uploaded
- No AI models/3rd-party databases were accessed




Gov-ID with simple reassurance

"AgeGuardian" age verification embedded in an iframe


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Exit Study
Back
Take a Photo of Your ID
Choose how you'd like to capture your ID for age verification.
Accepted documents include: U.S. driver's license, passport, state ID, or permanent resident card.
Use Computer Camera
Use Phone (QR Code)
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Privacy Policy

Carnegie Mellon University

# CMU R-Rated Romantic Media Study

STUDY2025_00000103

Exit Study

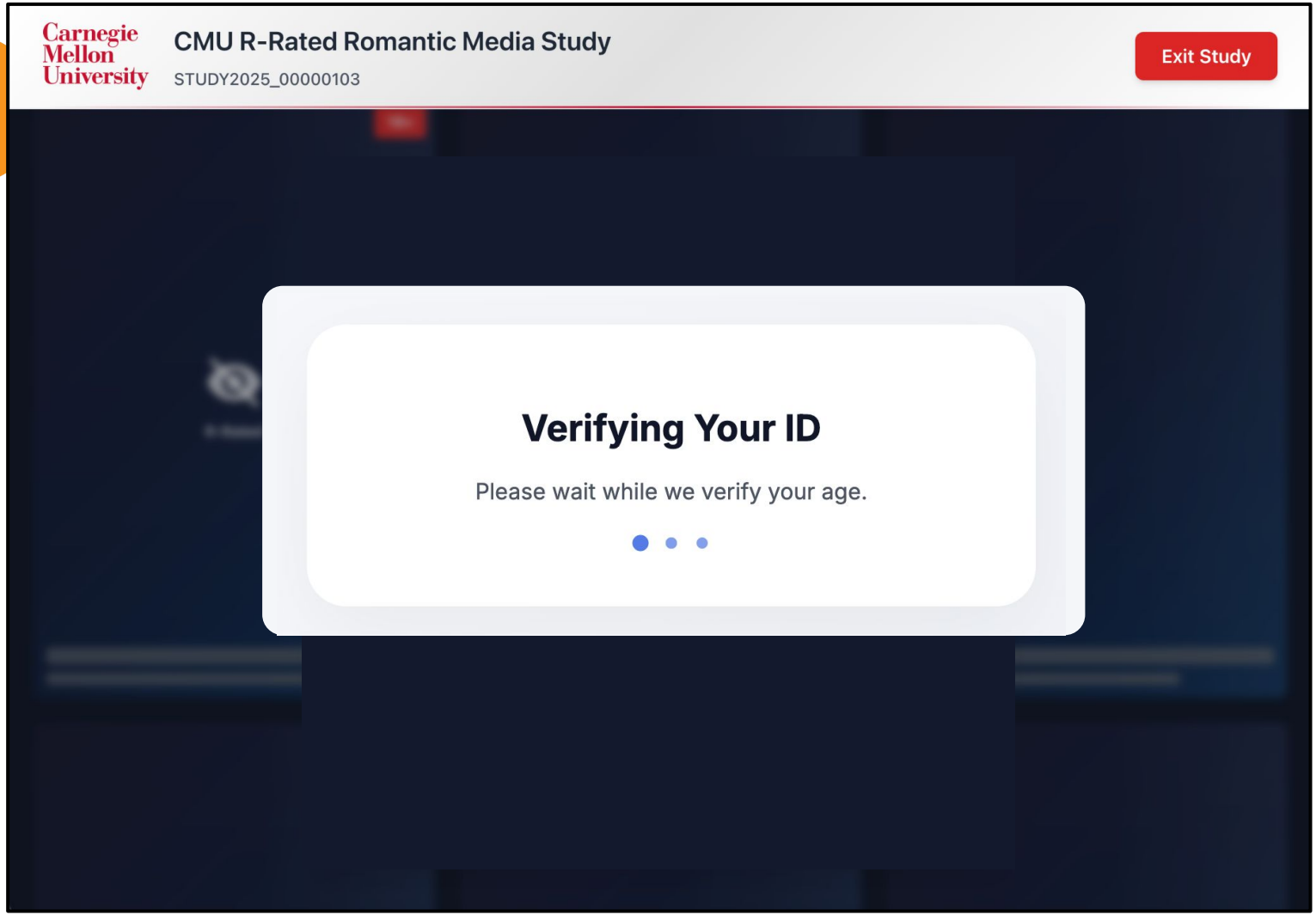
← Back

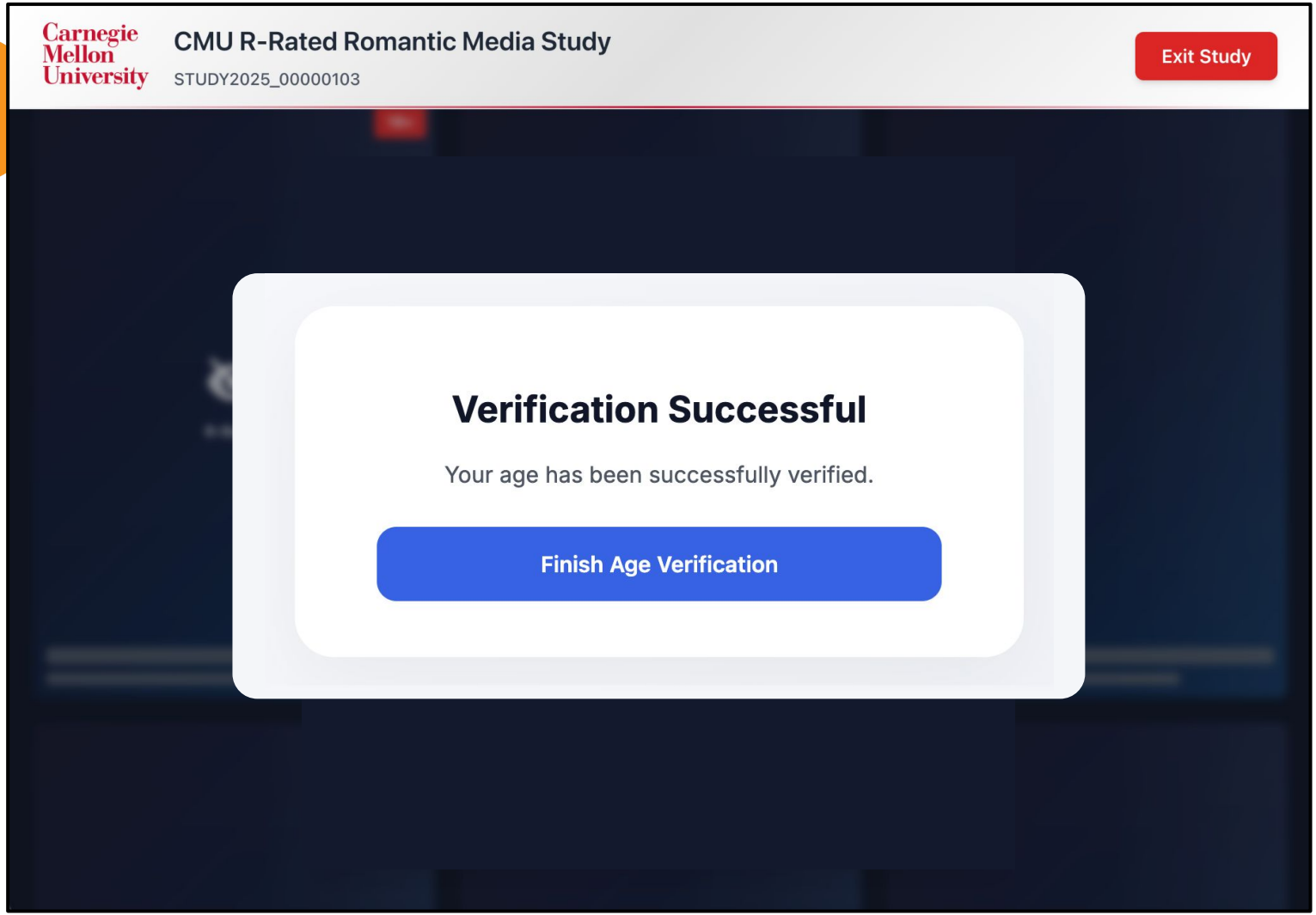
## Scan Your ID

Make sure your ID is centered, well-lit, and clearly shows your date of birth.

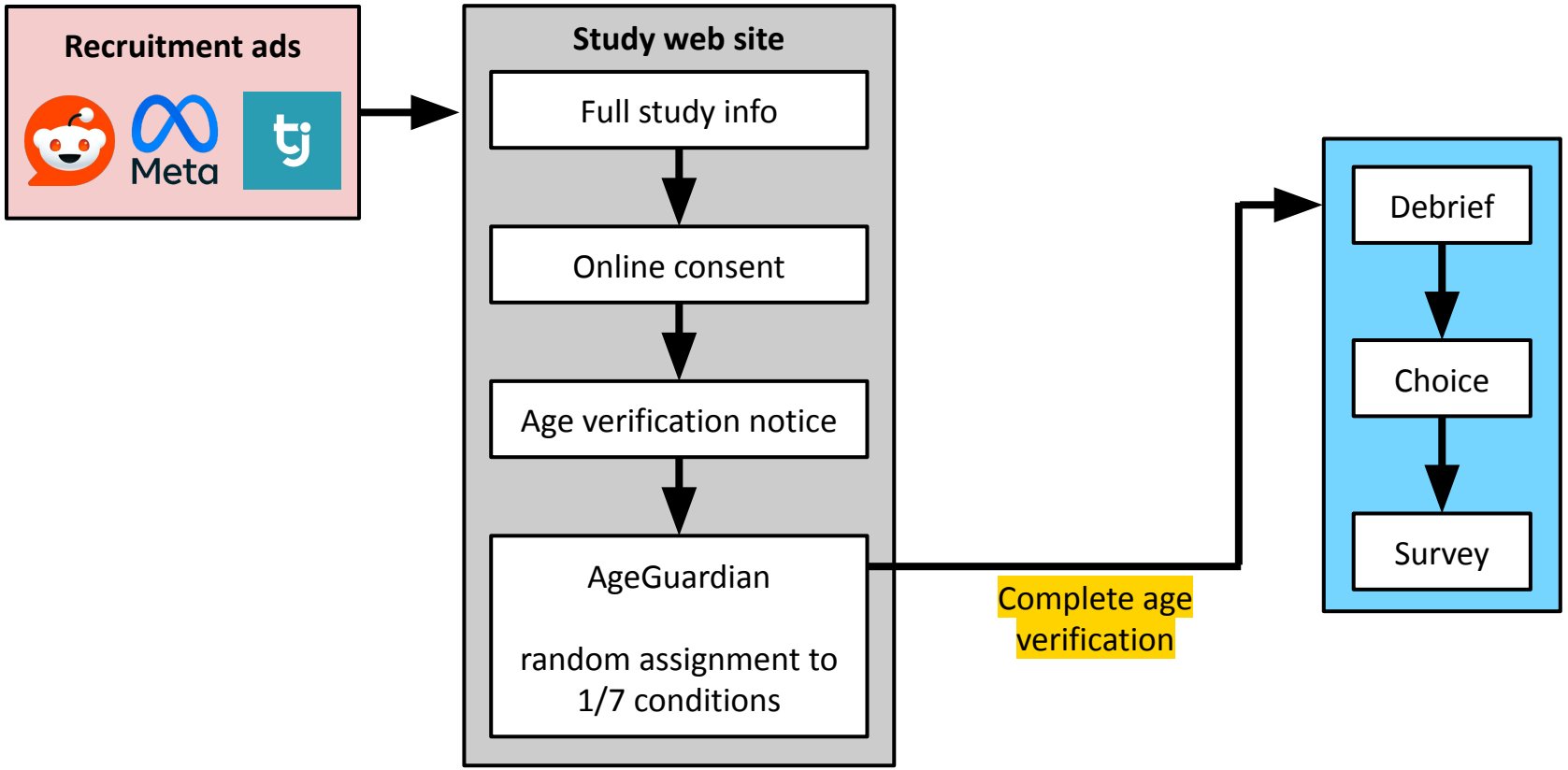



Capture Photo

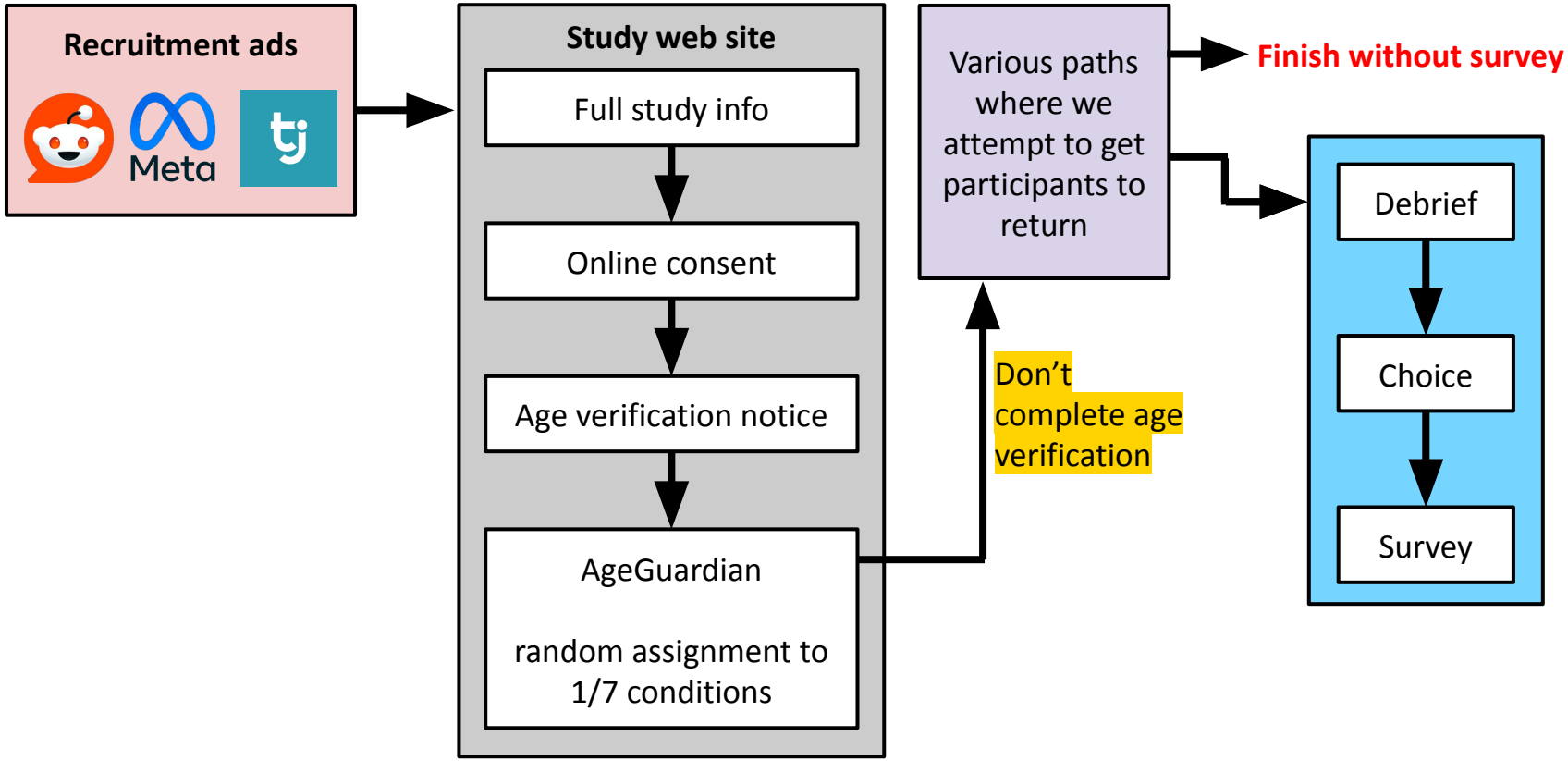

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Exit Study
Verifying Your ID
Please wait while we verify your age.


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STUDY2025_00000103
Exit Study
Verification Successful
Your age has been successfully verified.
Finish Age Verification

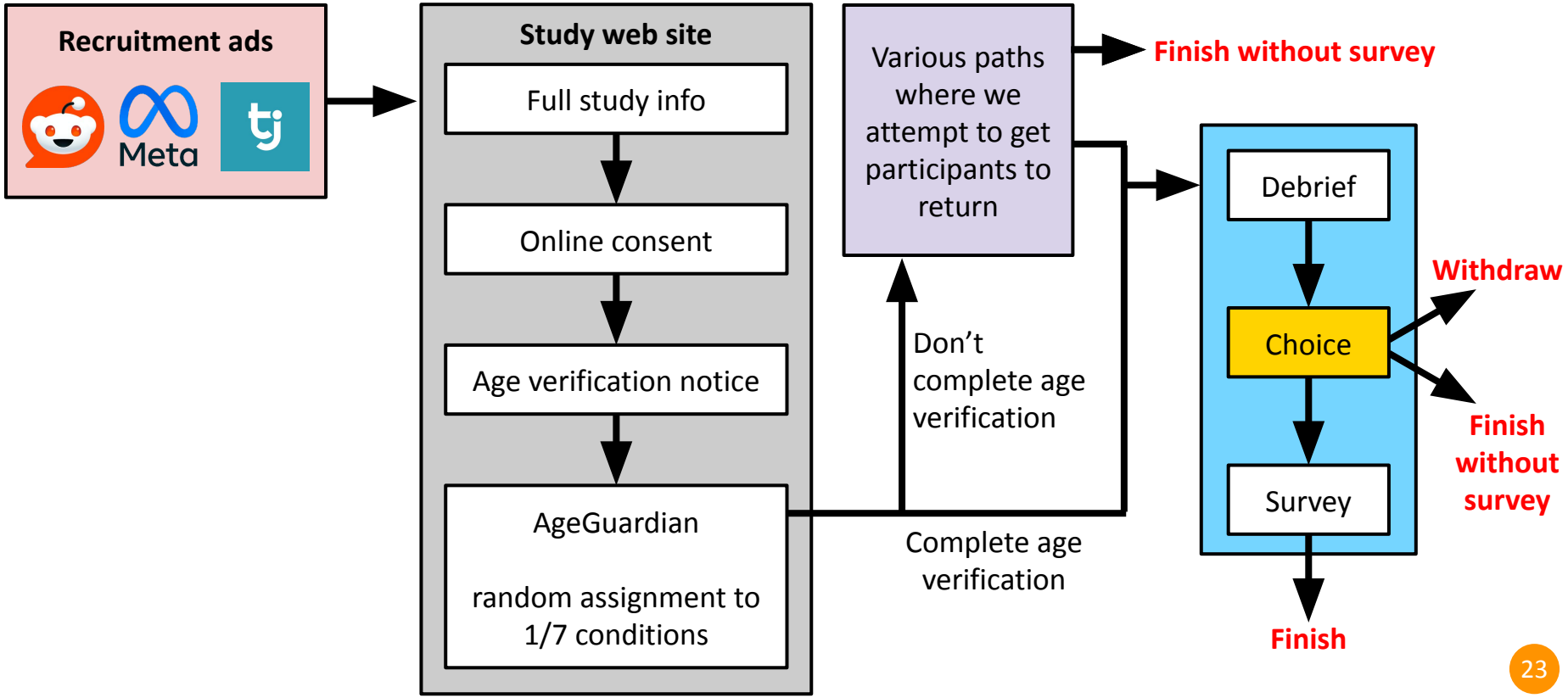
# After age verification, debrief + survey



# And what happens if they don’t age verify?



# Those who verify, exit, or return are debriefed



# Final survey explored attitudes and perceptions




- Explored comfort, perceived risk, effectiveness, and convenience with the process
- Prior experience with age verification
- Demographic information

# 1,635 US participants (~230 per condition)

- Recruited through ads on three platforms
  - 84% from Reddit
  - 13% from TrafficJunky
  - 3% from Meta

- 881 completed final survey (~94 per condition)

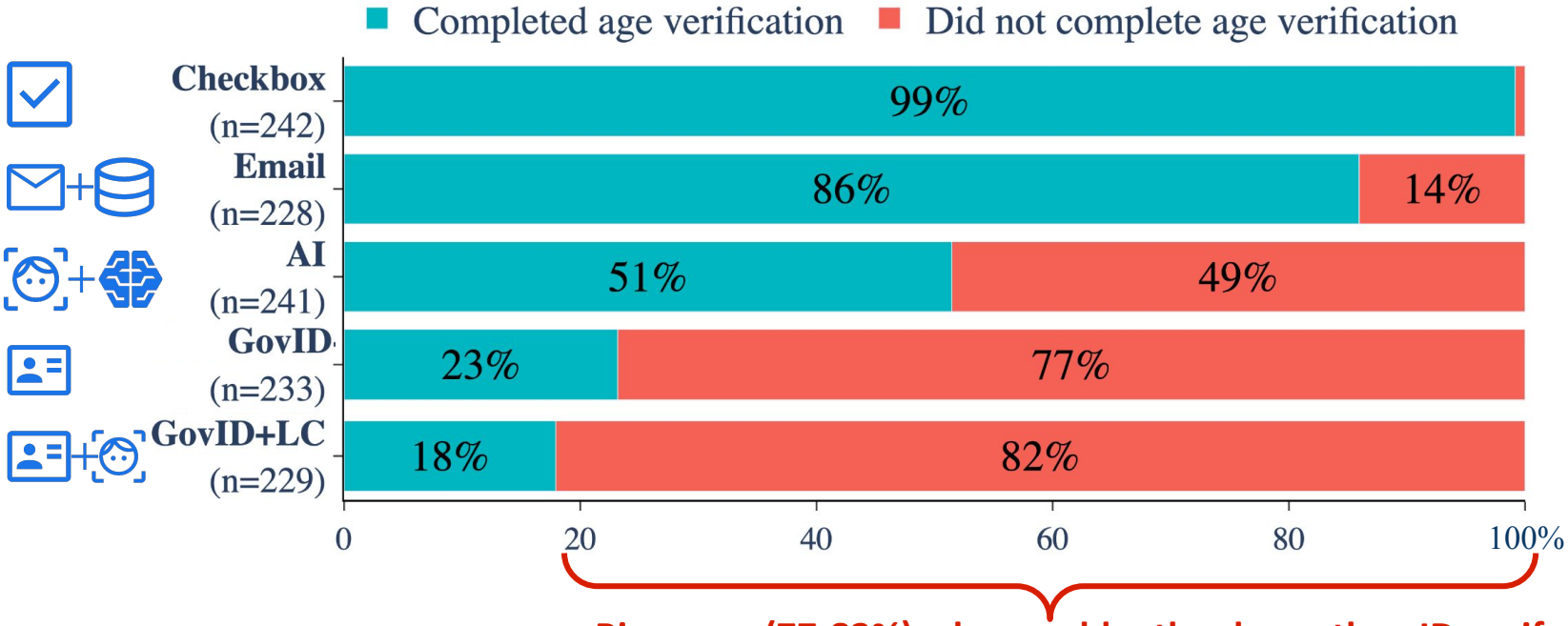
# RQ1 results

**RQ1:** How do different age verification methods affect users' decisions to access R-rated romantic media?

**RQ2:** How do disclosures of data handling practices affect those decisions?

**RQ3:** What are users' perceptions of and attitudes toward different age verification mechanisms?

# Methods impact verification decisions




**Big group (77-82%) who would rather leave than ID-verify age (50% for AI age estimation)**

# RQ2 results

**RQ1:** How do different age verification methods affect users' decisions to access R-rated romantic media?

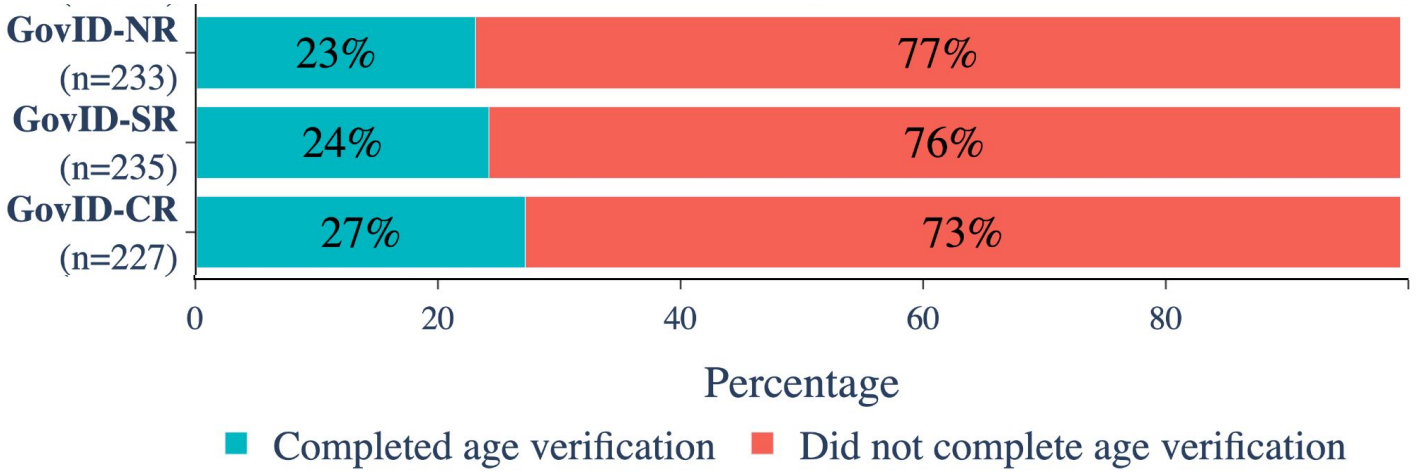
**RQ2:** How do disclosures of data handling practices affect those decisions?

**RQ3:** What are users' perceptions of and attitudes toward different age verification mechanisms?

# Reassurances do not change verification behavior

**SR** (Simple-Reassurance):
"Your data will be used only for age verification."

**CR** (Compound-Reassurance):
"Your data will be used only for age verification. We will delete your identifying information after access has been granted."




**No significant effect from text reassurance**

# Reassurances affect comfort for some

"How did seeing [statement] impact your feelings about the age verification process?"

- Among those who age verified: 48-57% reported **increase in comfort**

> *"*I was less worried that my data would be exposed by hacking or data breaches in the future*"* (GovID-CR)

- Among those who did *not* age verify: 56-76% reported **no change in comfort**

> "I never really trust what they say about making sure the records used for verification stay separate or deleted from the list of verified users" (GovID-CR)

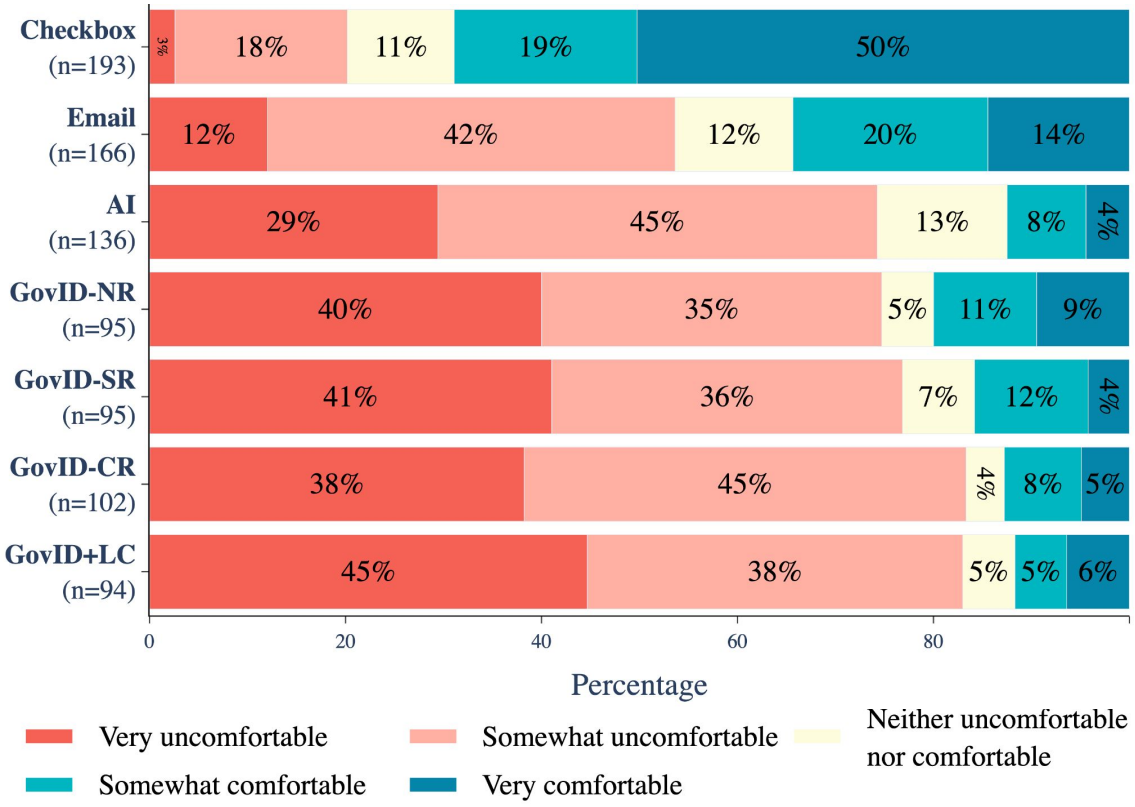
# RQ3 results

**RQ1:** How do different age verification methods affect users' decisions to access R-rated romantic media?

**RQ2:** How do disclosures of data handling practices affect those decisions?

**RQ3:** What are users' perceptions of and attitudes toward different age verification mechanisms?

# Discomfort was common across all non-checkbox methods



# Most mentioned reasons for discomfort

- Distrust in AgeGuardian or verifiers in general:

> “I do not trust any private entity to securely store or process my information, period.” (GovID-CR)

- Security concerns about uploading PII:

> “Given the proliferation of AI and deepfakes, I’d rather not upload an ID photo that could easily be used maliciously.” (GovID-SR)

# Other concerns that lead to discomfort

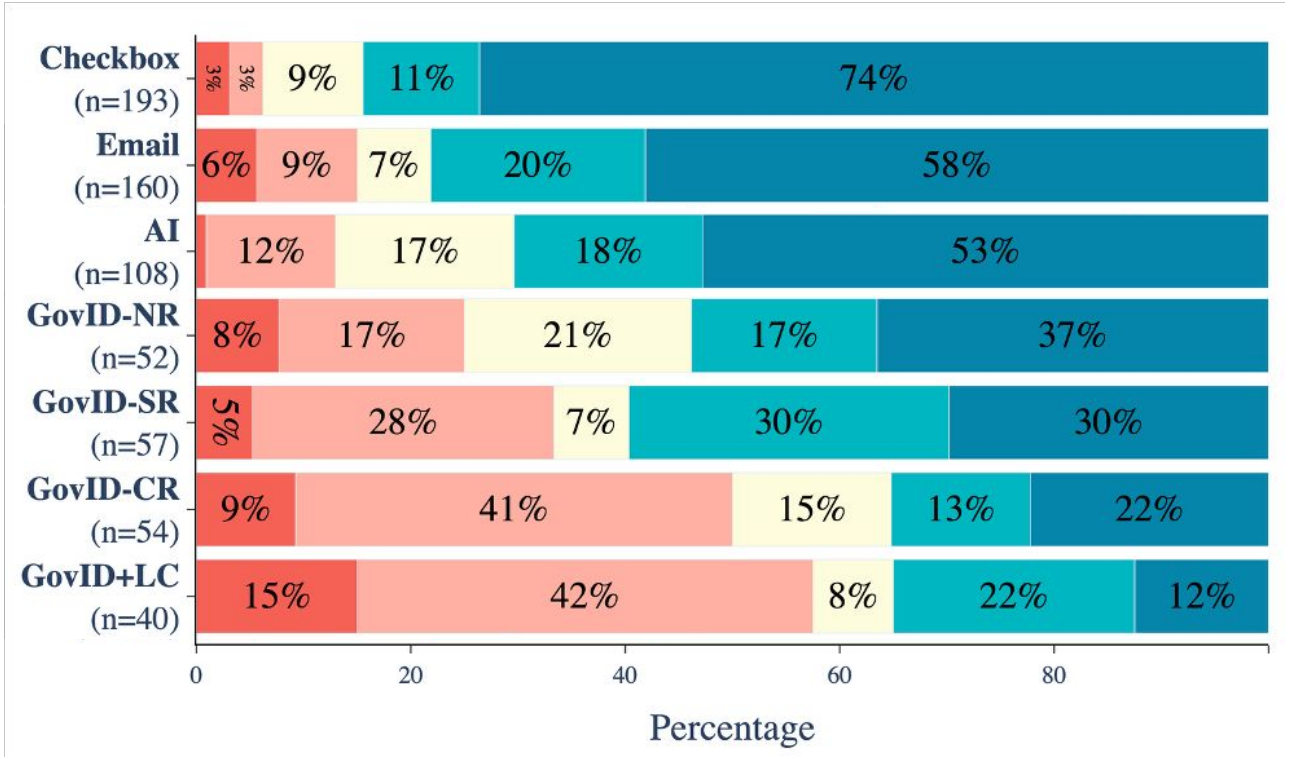
- Anonymity concerns:

> “I don’t like the idea of my government ID being able to be tied to what I watch online.” (GovID-NR)

- Insufficient/inaccessible information on how data are collected, stored, and used post-verification:

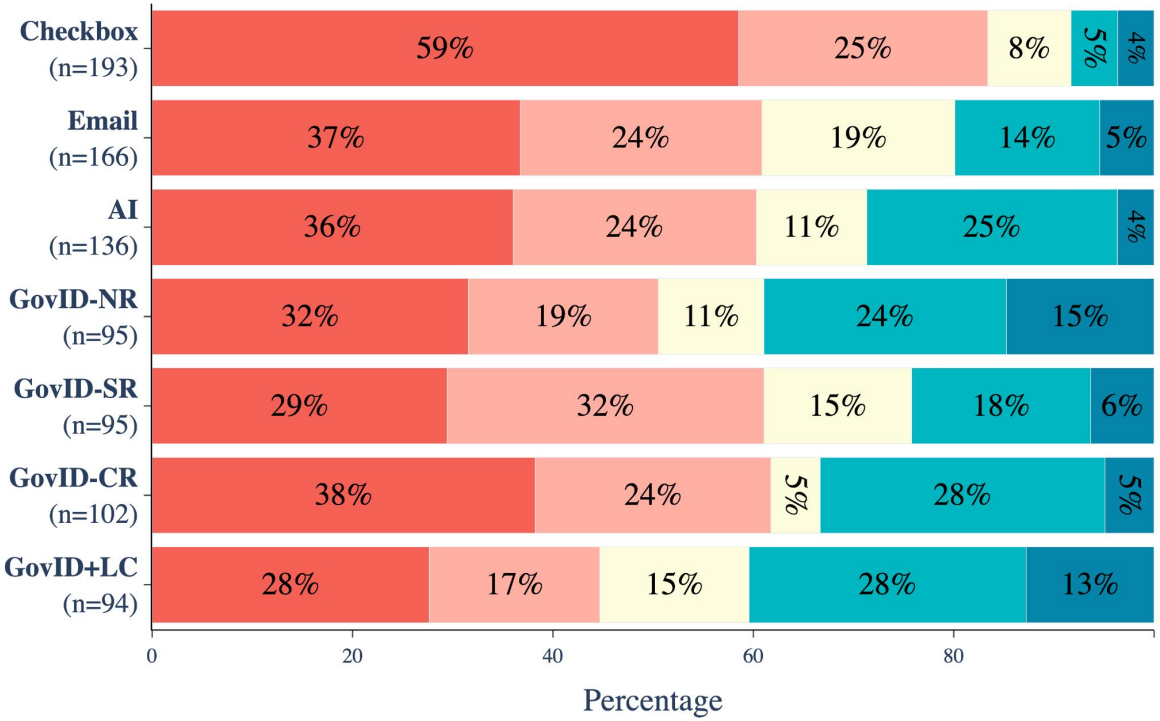
> “The only way to know if my photo would be deleted or stored would be to read through a dense terms and conditions statement that I would need to be an attorney to understand.” (GovID-CR)

# Gov-ID methods perceived as more inconvenient




(only among people who completed verification)

# Methods not predicted to be effective overall



# Takeaways

- Uploading physical gov-IDs to third-party verifiers may lead to substantial adult non-completion (~75% did not age verify)
- Privacy reassurances alone are insufficient to enhance trust
- Data minimization may improve willingness to complete age verification
- Identity wallets may improve the situation IFF they are reliable and privacy protective (selective disclosure), but not yet widely available

**Full paper in proceedings:**



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CyLab Carnegie Mellon University Security and Privacy Institute