Session Title: Ensuring strong public support for automation in the planning process

Autonomous Vehicles:
Familiarity, Concerns, and Perceptions
TOMNET Transformative Technologies in Transportation (T4) Survey

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TOMNET Transportation Center
Teaching Old Models New Tricks

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TOMNET Transformative Transportation Technologies Survey

https://tomnet-utc.engineering.asu.edu/t4-survey/

- Phoenix, Atlanta, Austin, and Tampa

- Summer and Fall 2019 (pre-pandemic)

- Random address-based sample

- Online instrument

- Inclusion of attitudes, stated preference questions, and perceptions and choices of Mobility-on-Demand and Autonomous Vehicles
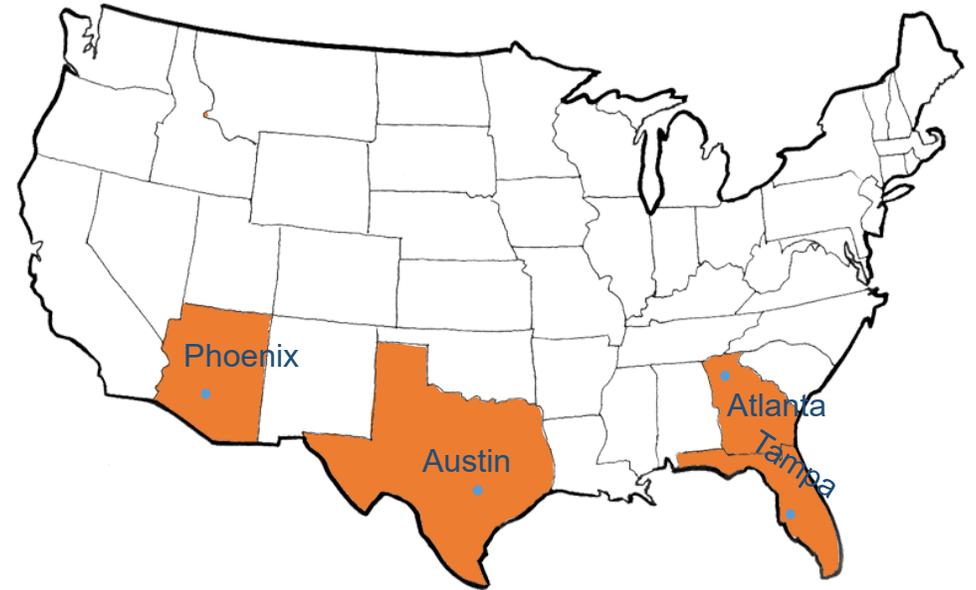
	Phoenix, AZ	Atlanta, GA	Austin, TX	Tampa, Fl	Total
Sample Size	1,027	944	1,127	260	3,358
%	30.6%	28.1%	33.6%	7.8%	100%

Level of AV Familiarity

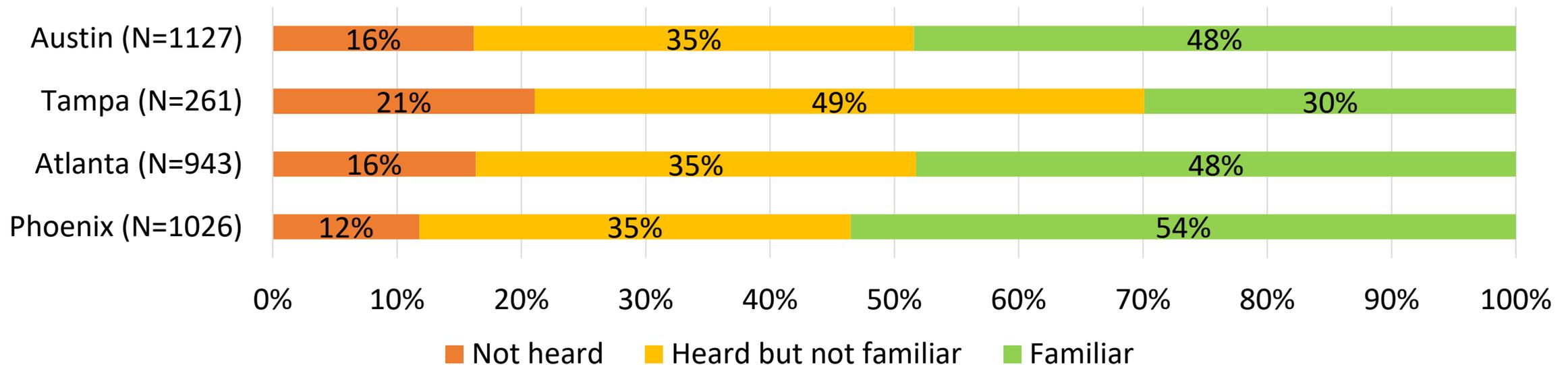Only half are somewhat or very familiar with AVs!
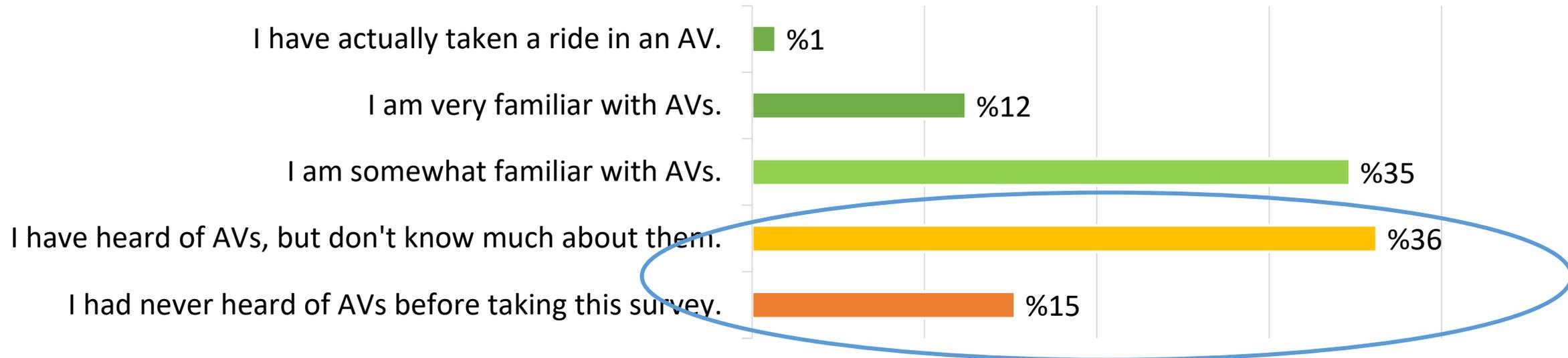
AV awareness campaigns and media coverage have not necessarily brought about a high level of familiarity across the population in the study areas.
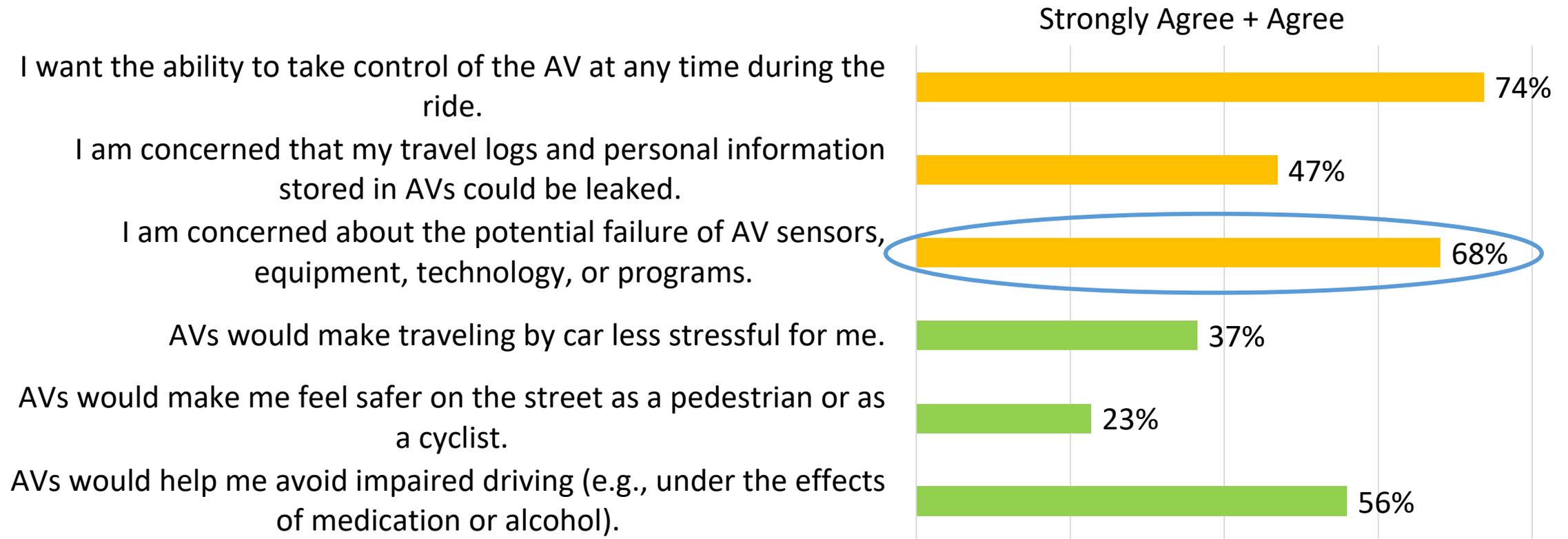
N=3358

What Matters for Level of AV Familiarity?

Level of familiarity <mark>increases</mark> among:

- Higher educated people
- Ridehailing users
- People with variety seeking attitudes
- Location matters…
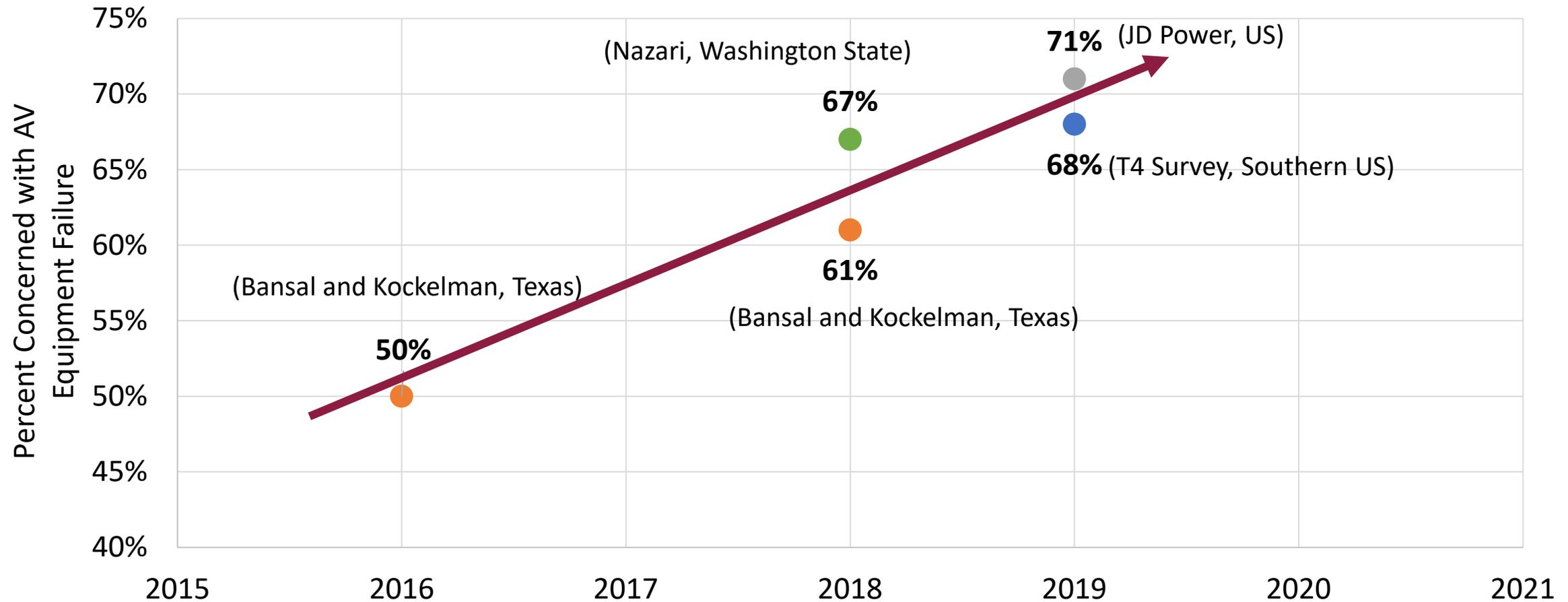
- Male
- Non-hispanic
- Higher income

Location	Not heard	Heard but not familiar	Familiar
Austin (N=1127)	16%	35%	48%
Tampa (N=261)	21%	49%	30%
Atlanta (N=943)	16%	35%	48%
Phoenix (N=1026)	12%	35%	54%

Legend: ■ Not heard ■ Heard but not familiar ■ Familiar

AV Safety Perception: Benefit or Concern?

Strongly Agree + Agree

Statement	Value
I want the ability to take control of the AV at any time during the ride.	74%
I am concerned that my travel logs and personal information stored in AVs could be leaked.	47%
I am concerned about the potential failure of AV sensors, equipment, technology, or programs.	68%
AVs would make traveling by car less stressful for me.	37%
AVs would make me feel safer on the street as a pedestrian or as a cyclist.	23%
AVs would help me avoid impaired driving (e.g., under the effects of medication or alcohol).	56%

Higher educated people, female, and Atlanta residents are more concerned!

Does Familiarity Decrease Safety Concern?

I am concerned about the potential failure of AV sensors, equipment, technology, or programs. (N=3,356)
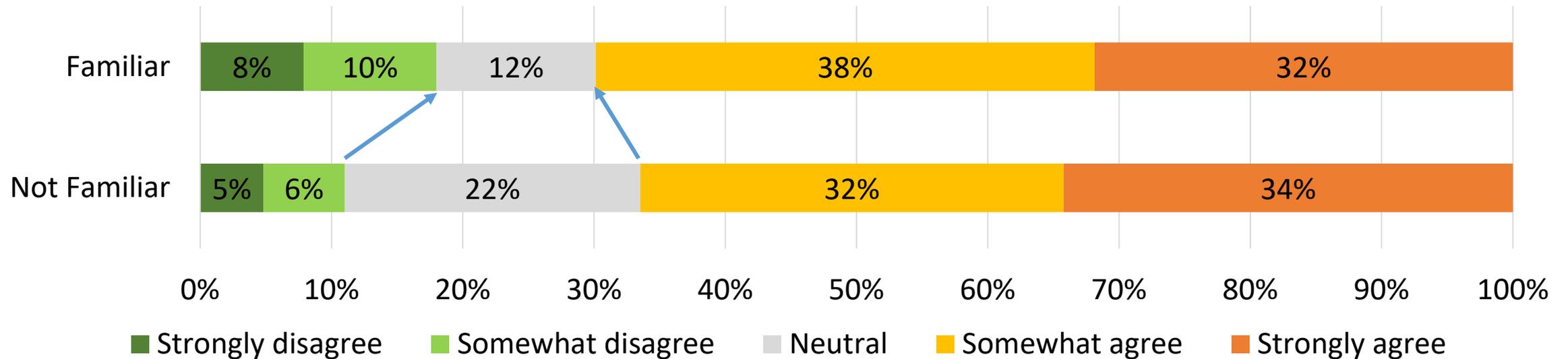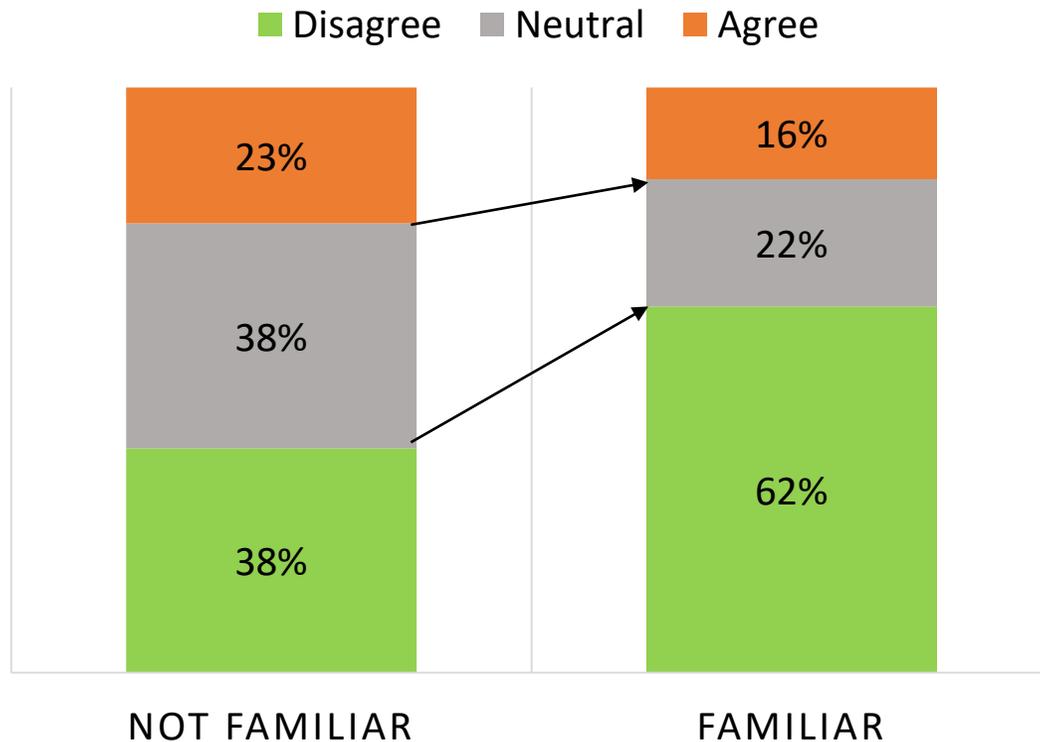

Familiarity appears to influence those who are neutral towards the technology. However, familiarity does not appreciably change the fraction who are concerned.

Willingness to Ride AV

Using the entire weighted sample, **20%** said they will never ride an AV.

I WILL NEVER RIDE AN AV. (N=3337)

- Higher level of familiarity and higher education level enhances willingness to ride.

- Older (41+ years), female, and tech-concerned respondents are less willing to ride AVs.

- People in Austin expressed higher willingness to ride.

AV Applications

I would feel comfortable having an AV pick-up/drop-off children without adult supervision.

Disagree	Neutral	Agree
62%	21%	18%

I would send an AV to pick-up groceries/laundry/food orders by itself.

Disagree	Neutral	Agree
28%	23%	49%

AVs would save me time and money for parking by dropping me off and parking themselves.

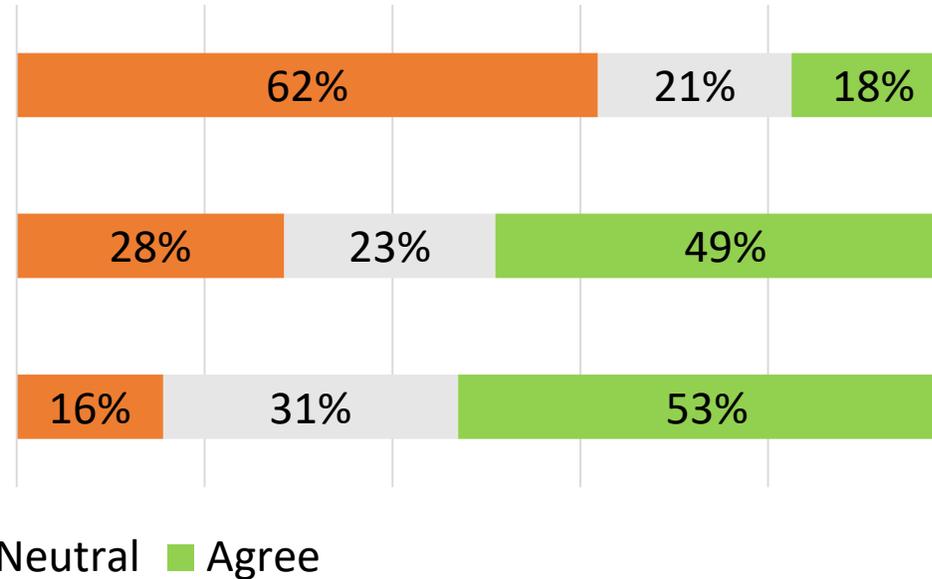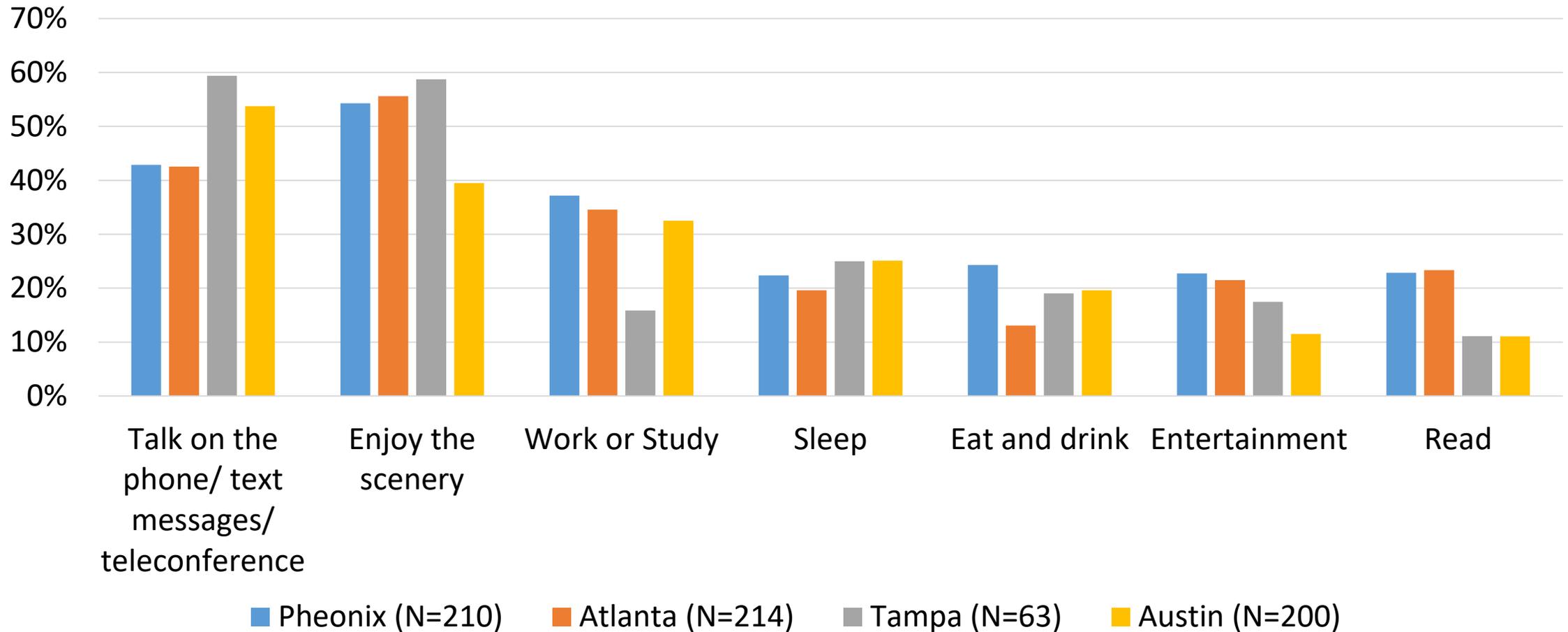| Disagree	Neutral	Agree
16%	31%	53%

■ Disagree ■ Neutral ■ Agree

Photo: Brian Tietz for Transdev

Photo: Ross D. Franklin, STF / Associated Press

- Familiarity really helps with agreeing to use AV in various applications.
- 20-30 percent are not sure about their AV use for various applications.

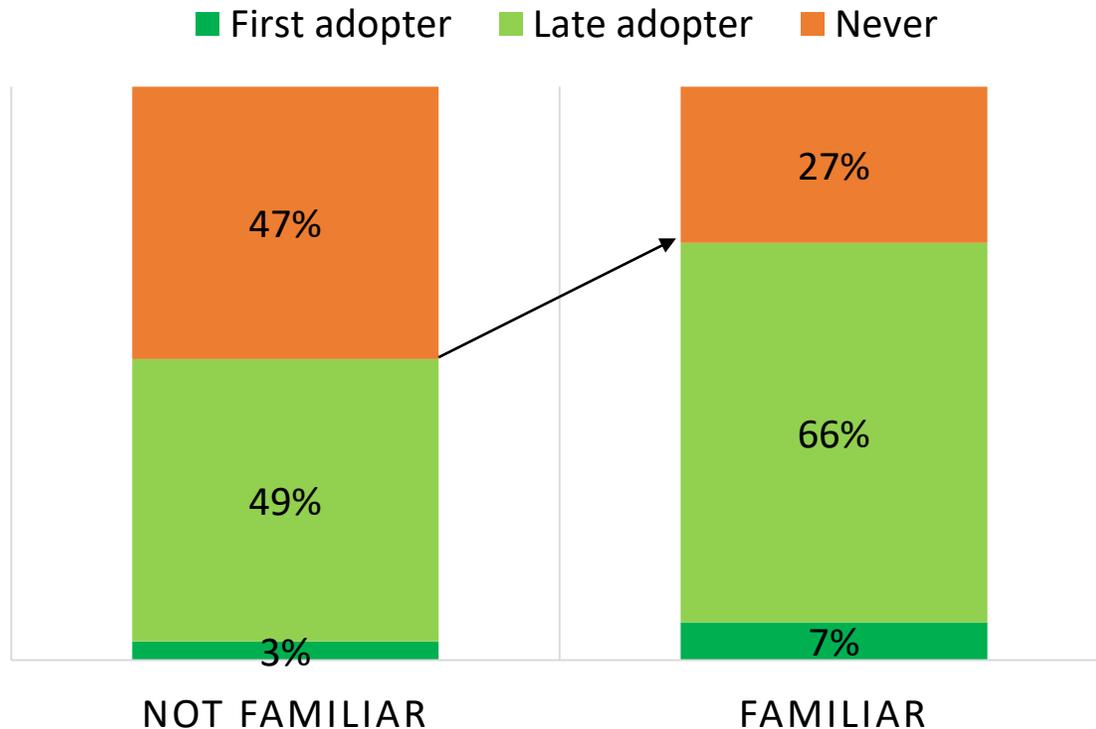# What People are Expecting to Do While Commuting in an AV?

Respondents could choose up to three activities.

The 2021 TRB Annual

Automated Road Transportation Symposium

AV Purchase

Using the entire weighted sample, **38%** said they will never buy an AV.

TIME OF AV PURCHASE (N=3358)

- ■ First adopter ■ Late adopter ■ Never

NOT FAMILIAR
- Never: 47%
- Late adopter: 49%
- First adopter: 3%

FAMILIAR
- Never: 27%
- Late adopter: 66%
- First adopter: 7%

## Willingness to buy increases by/among:

- Familiarity with AV

- Ridehailing use

- Tech-savvy attitude

- Less concern about privacy

- Male respondents

- High income

- Driving limitation

AV Regulatory Perceptions

Laws should be passed to require AVs to travel at 25 mph or less on city streets.
- Disagree: 32%
- Neutral: 34%
- Agree: 34%

AVs should prioritize the safety of pedestrians and bicyclists on the road over that of passengers in the vehicle.
- Disagree: 24%
- Neutral: 33%
- Agree: 42%

AVs should be allowed on the market only when they prove to be at least as safe as human drivers.
- Disagree: 10%
- Neutral: 11%
- Agree: 79%
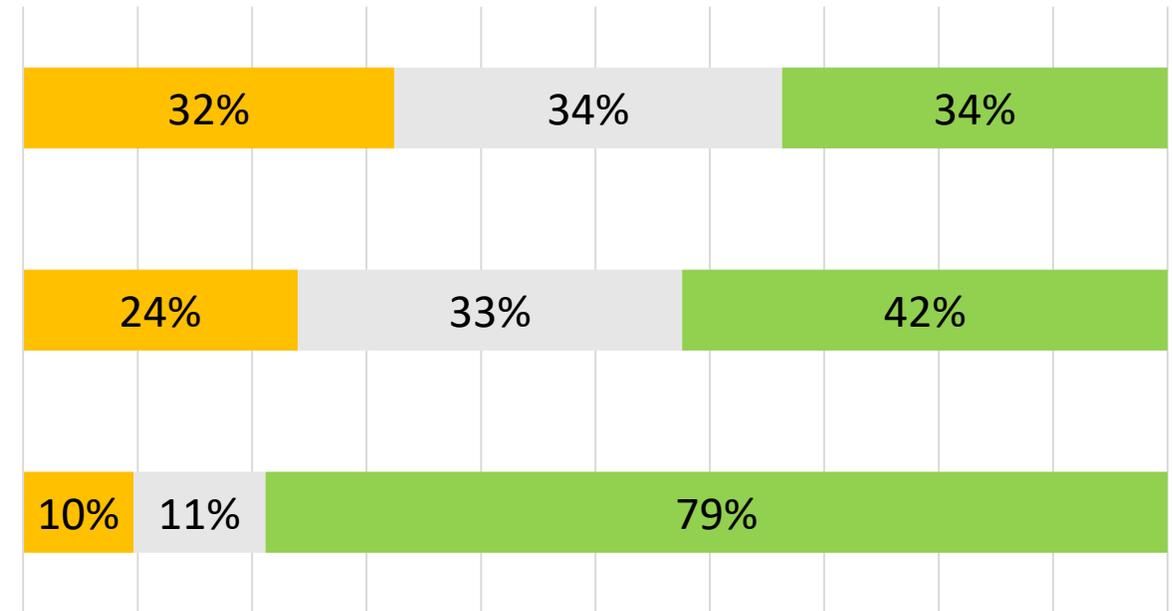
Legend: ■ Disagree ■ Neutral ■ Agree

- About one-third of the respondents are neutral toward AV regulations.
- The majority of respondents feel AVs should be at least as safe as regular vehicles.

Conclusions

- 50 percent are still not familiar with AVs.
- 22 percent are not willing to ride and 42 percent are not willing to buy an AV.
- Almost two-third of the respondents are still concerned about the **technology**.
- **Attitudes and demographics** play key roles in **adoption** pathways.

FUTURE

Lots more work should be done in public **education and awareness** domains to enhance public **trust** in the AV technology. We must plan for AV as a technology that is going to improve mobility across all segments of the population.

Do more pilots and raise confidence in the technology!

Thank you!

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For more information:

https://tomnet-utc.engineering.asu.edu/t4-survey/