

# An Exploratory Analysis of Motorcyclist Apparel Using Naturalistic Riding Data

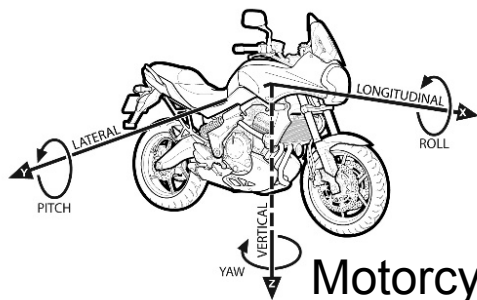
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# Data Collection

- Participants volunteered to ride normally as video and sensor data were collected for every trip (key on/key off)
- 46 participants' data analyzed (1211 trips)
  - These were riders with videos available for a substantial number of their completed trips
  - Trips representative of unique month/day/time of day
- At the time of analysis, participation ranged from 5 to 16 months
- Bike types: Cruiser, Touring, Sport
- Installation sites: California, Florida, Virginia

# Video Reduction

- Five video views (rider's face, forward, rear, left, right)
- Video review to characterize rider apparel
  - Torso clothing
  - Helmet
  - Gloves
  - Eyewear
- Reductionist coded conditions that existed for most of the trip
  - If indeterminable, coded where speed first exceeded 20 mph (or highest speed if trip speed remained < 20 mph)

# Variables

- Weather
- Time of Day
- Clothing (Torso)
  - Type (based on material/coverage)
  - Armor
  - Color
  - Reflectivity
- Helmet
  - Usage
  - Type
  - Color
- Gloves
  - Usage
  - Type
  - Color
- Eyewear
  - Usage
  - Type

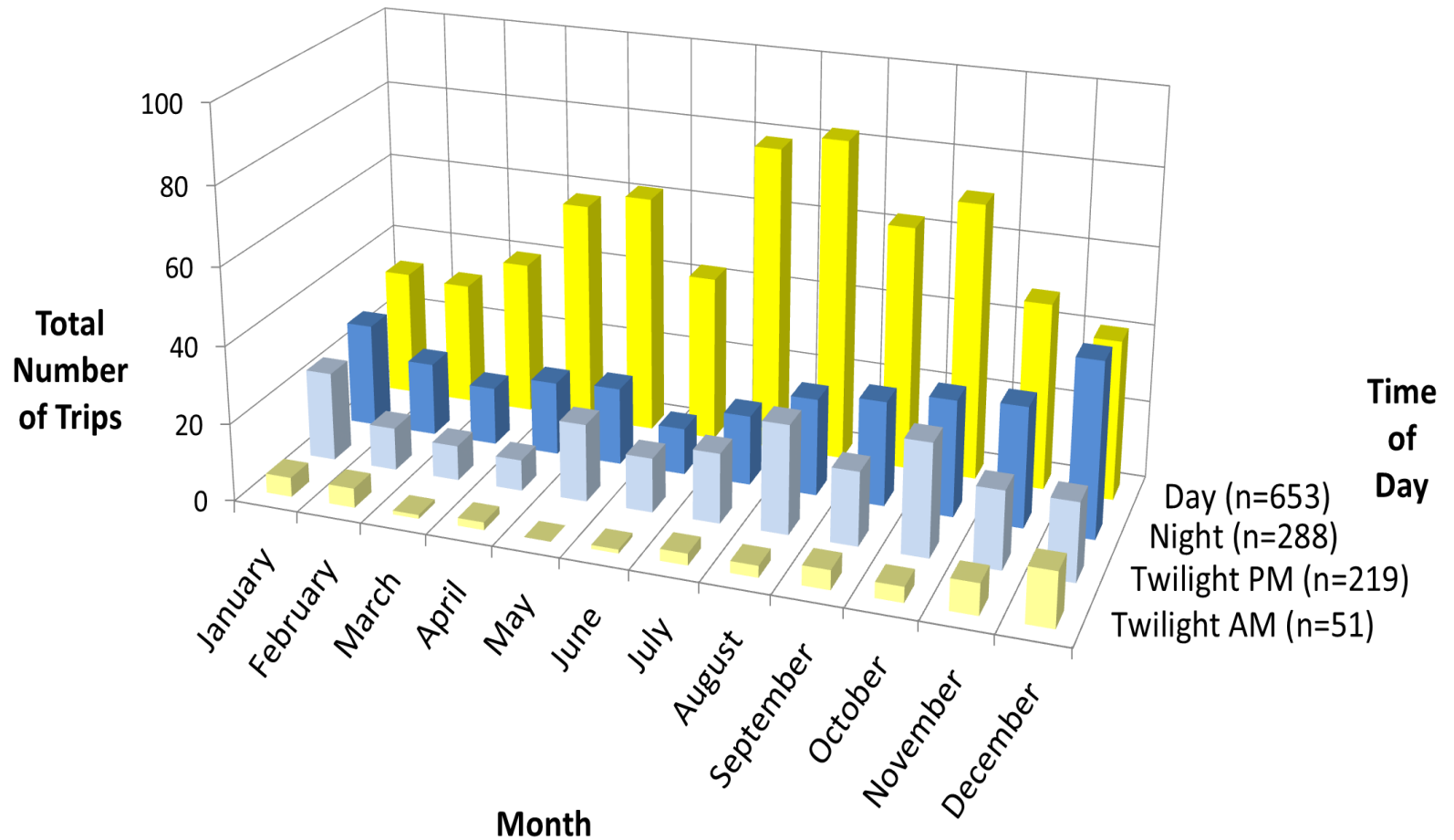
# Sample Descriptors

## Trip and Participant Distribution

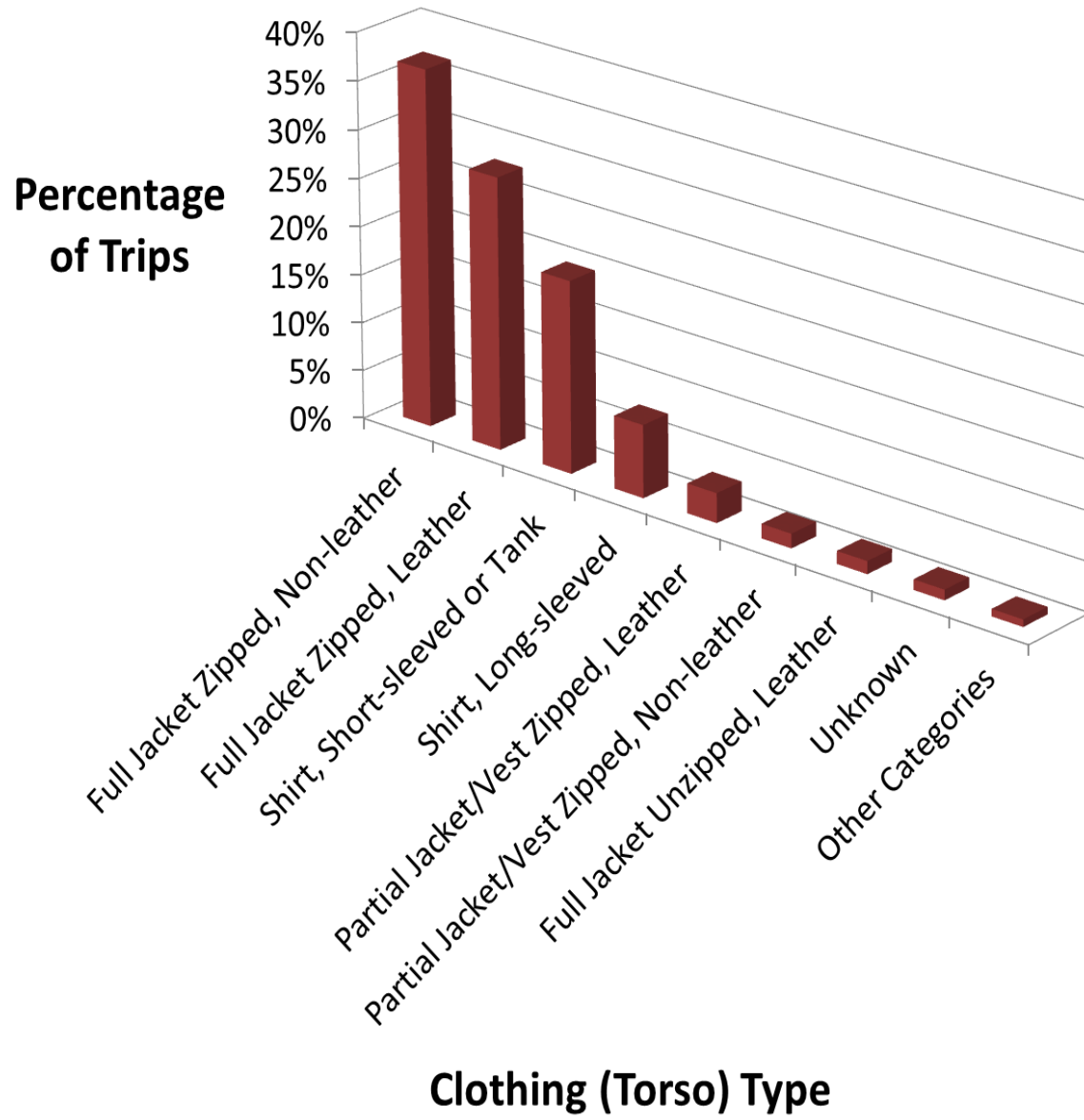
Time of Day	Number of Trips	Percentage of Trips	Number of Participants	Percentage of Participants
Twilight AM	51	4.2%	16	34.8%
Day	653	53.9%	46	100.0%
Twilight PM	219	18.1%	39	84.8%
Night	288	23.8%	36	78.3%
	1211	100%		

# Sample Descriptors

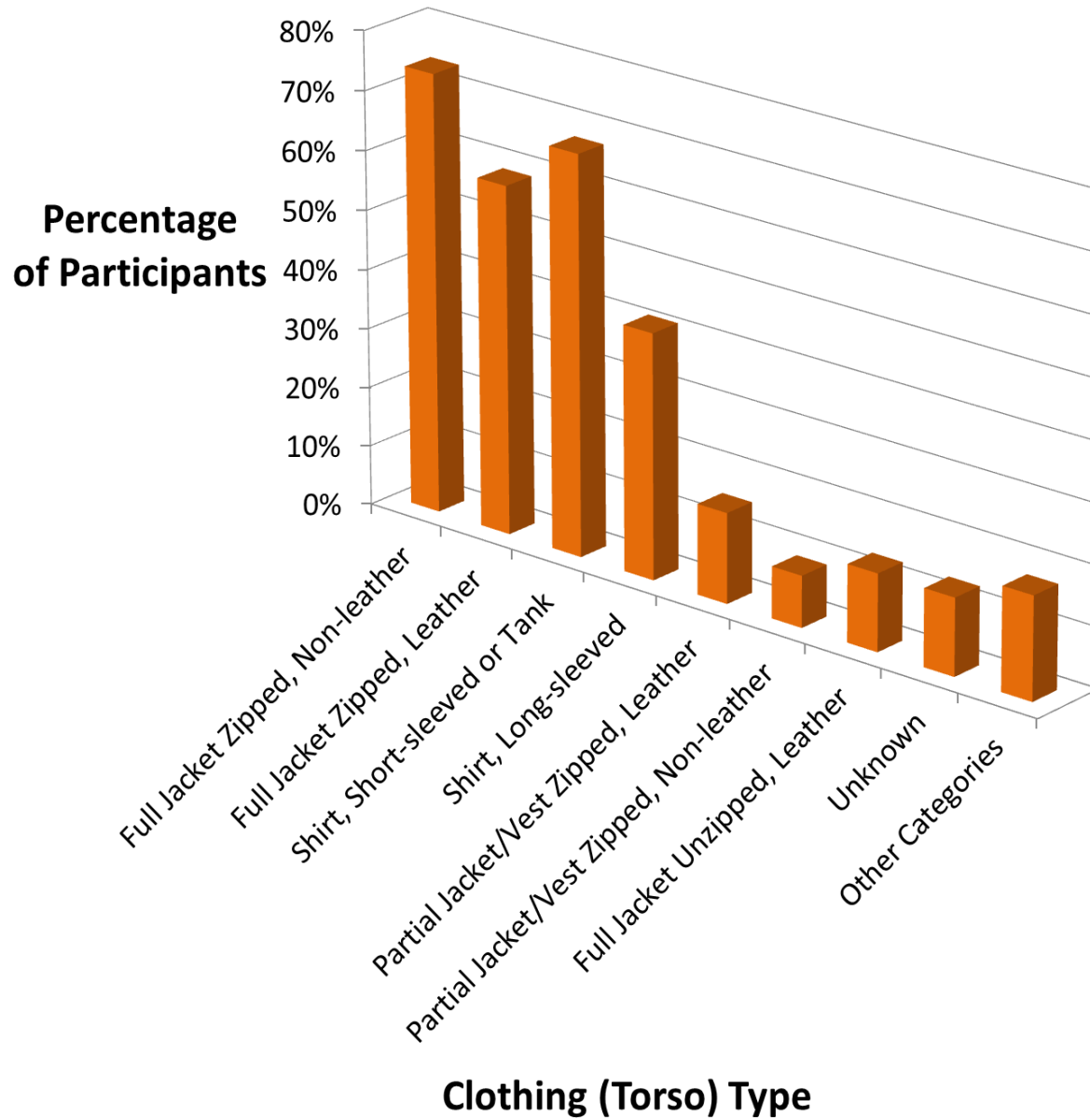
## 1211-Trip Distribution Across Month and Time of Day



## Percentage of Trips Including Each Clothing Type

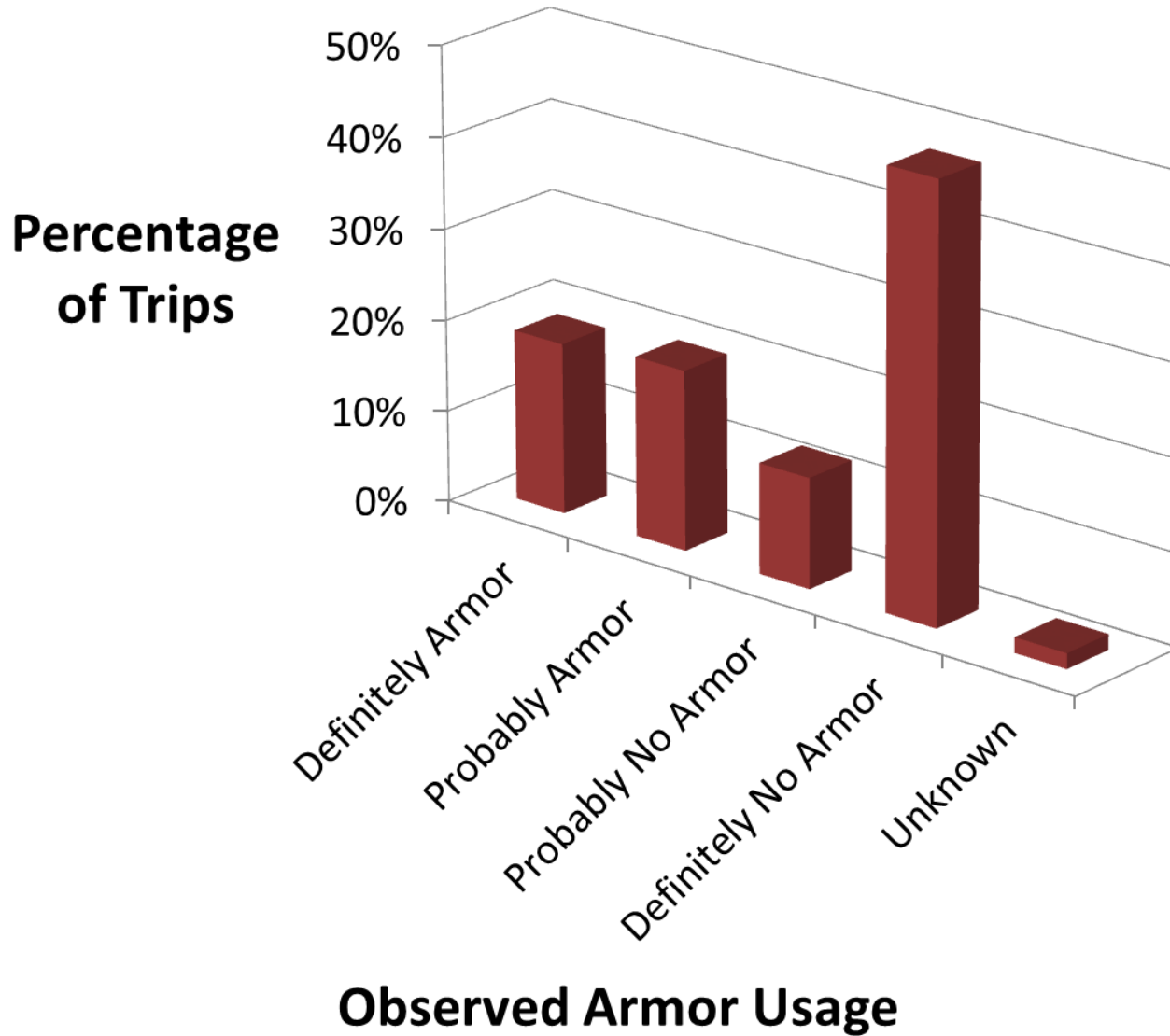


## Percentage of Participants Observed Wearing Each Clothing Type

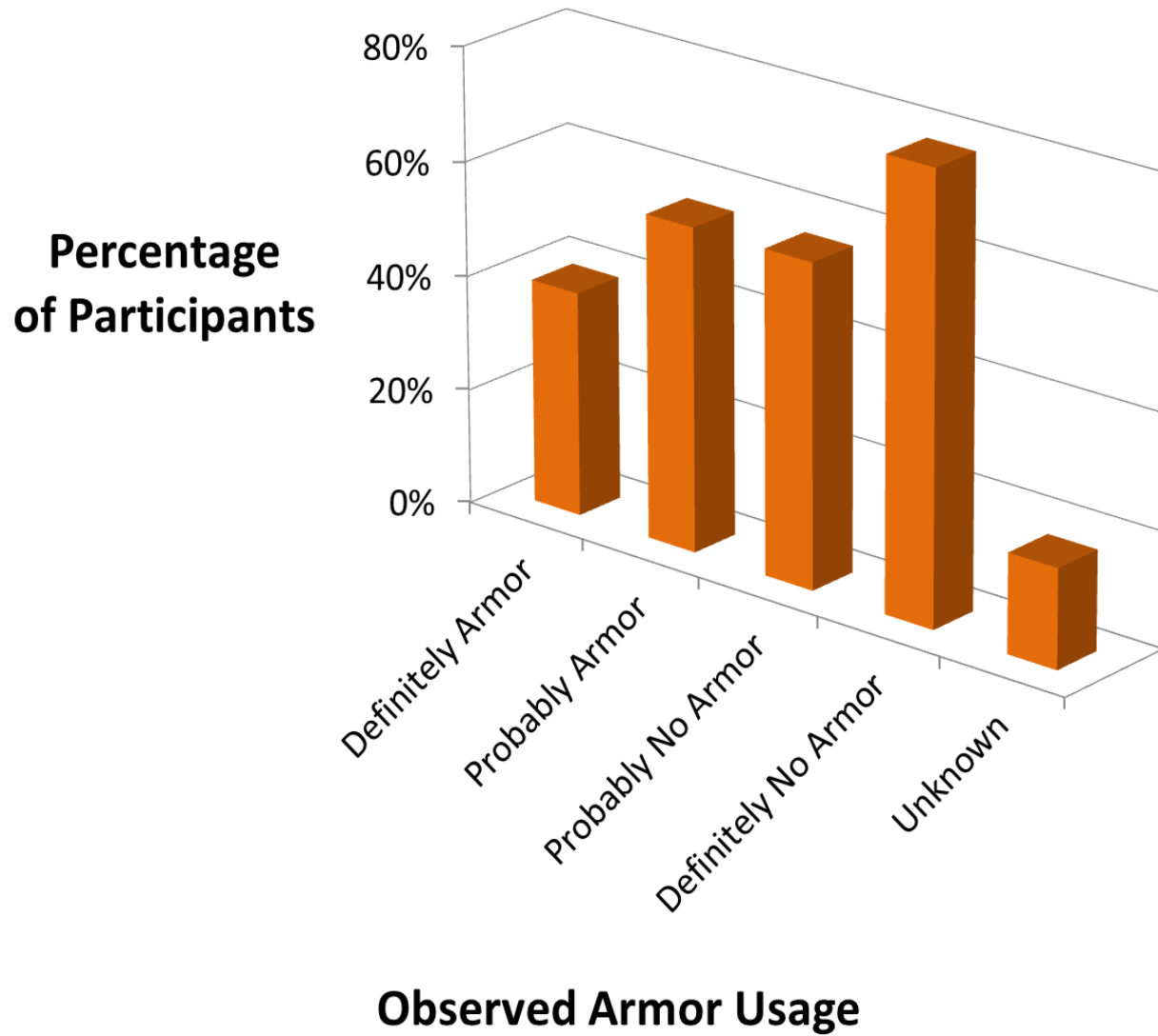




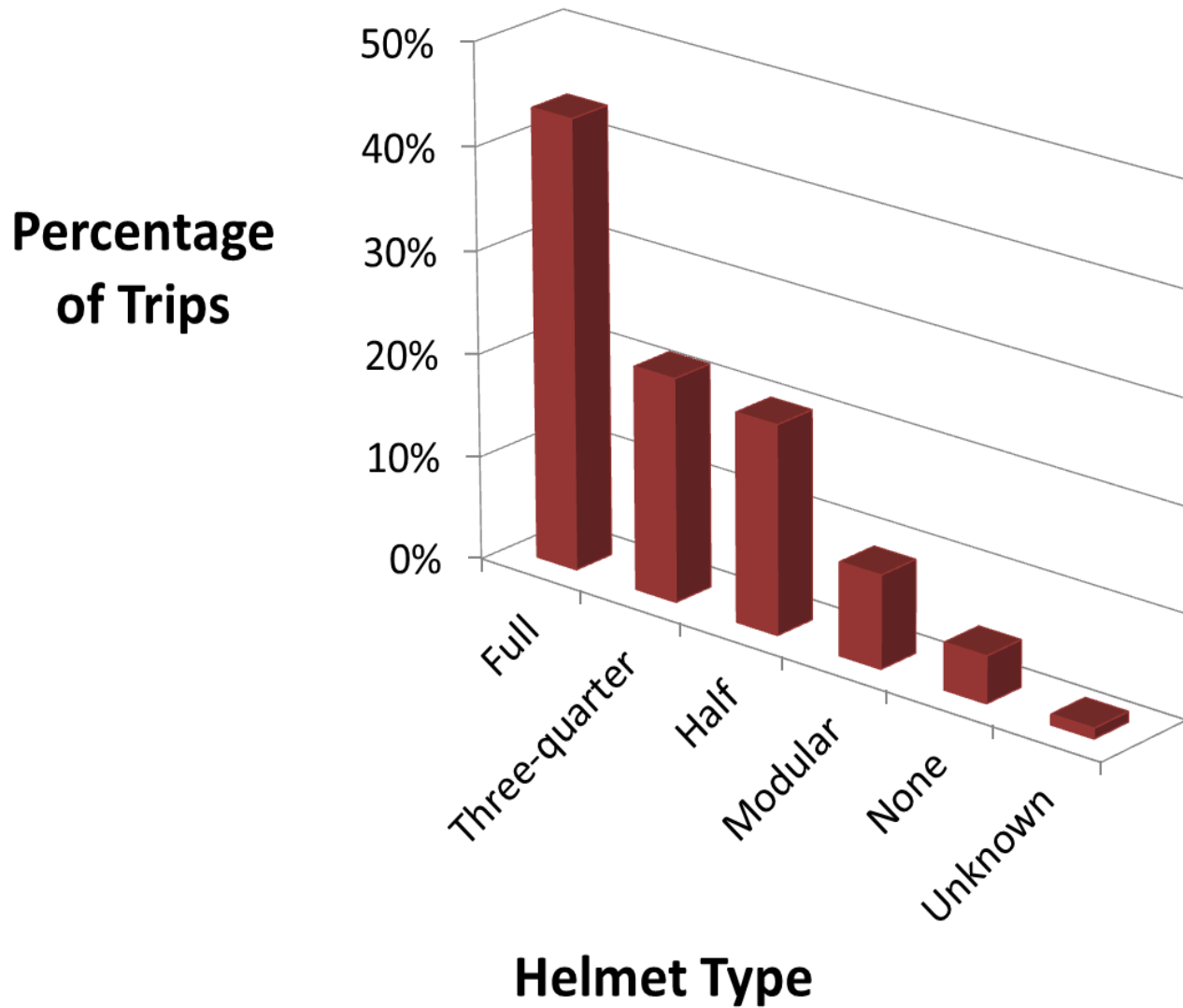
## Percentage of Trips With Armor Category



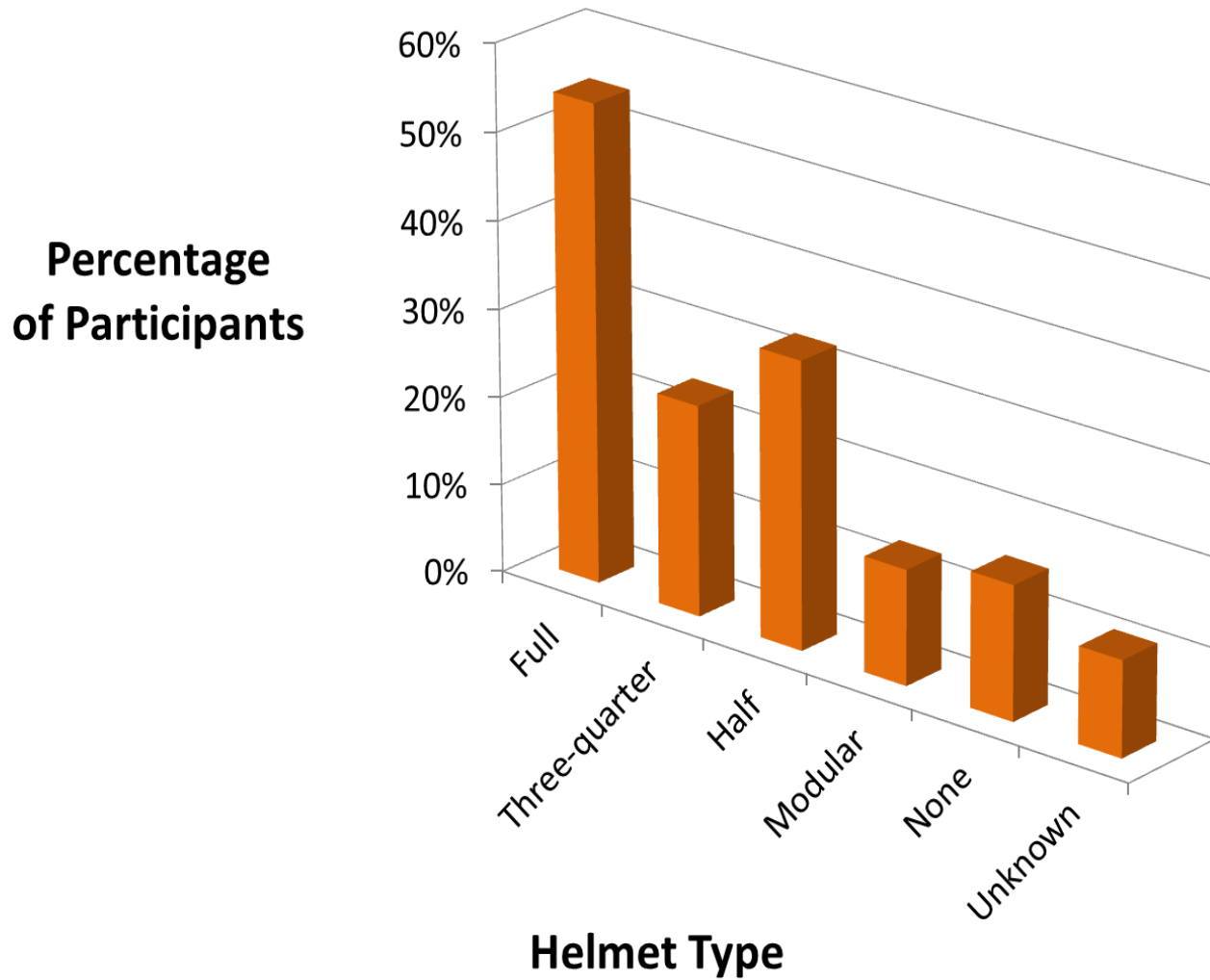
## Percentage of Participants For Each Armor Category



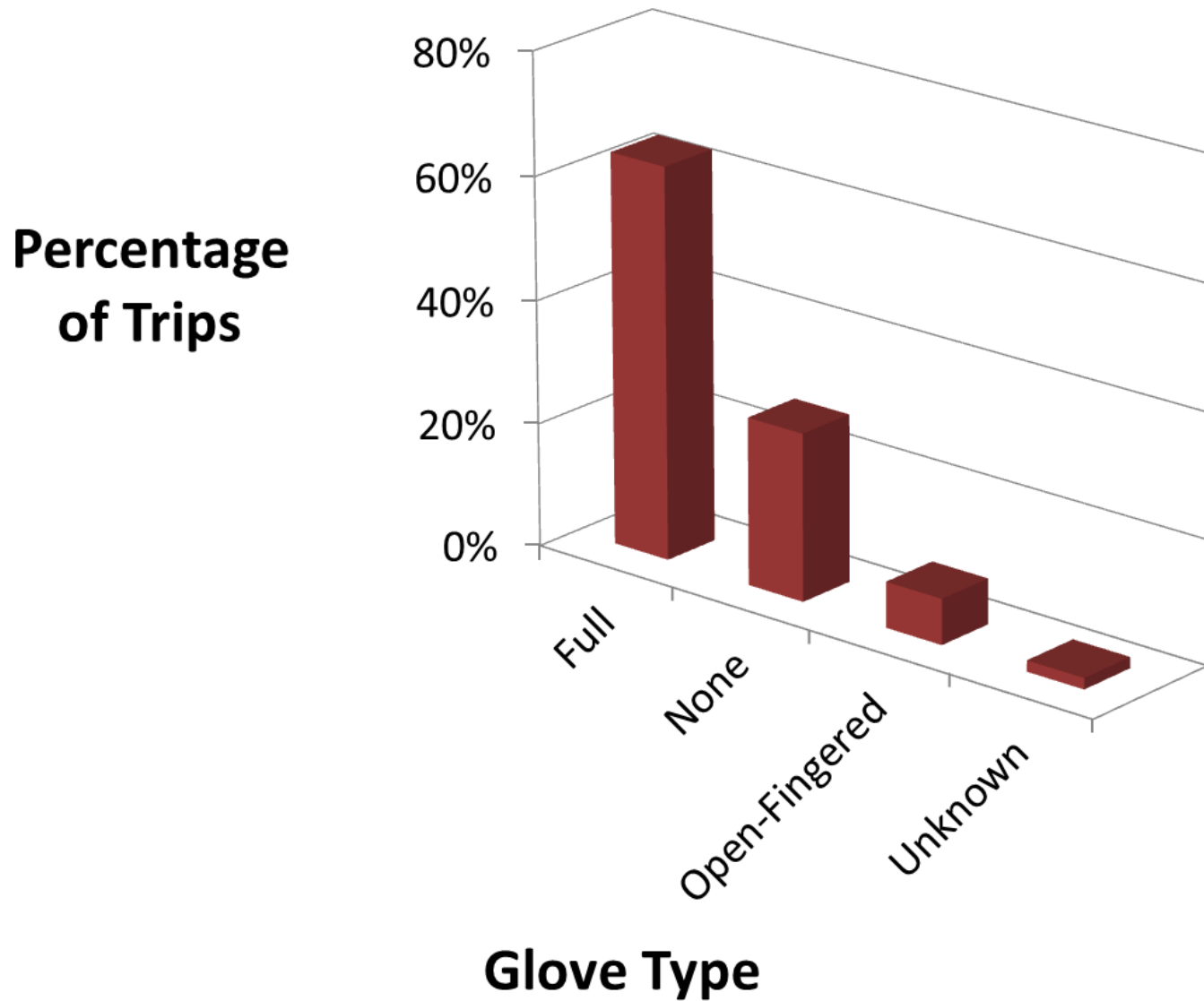
## Percentage of Trips Including Each Helmet Type



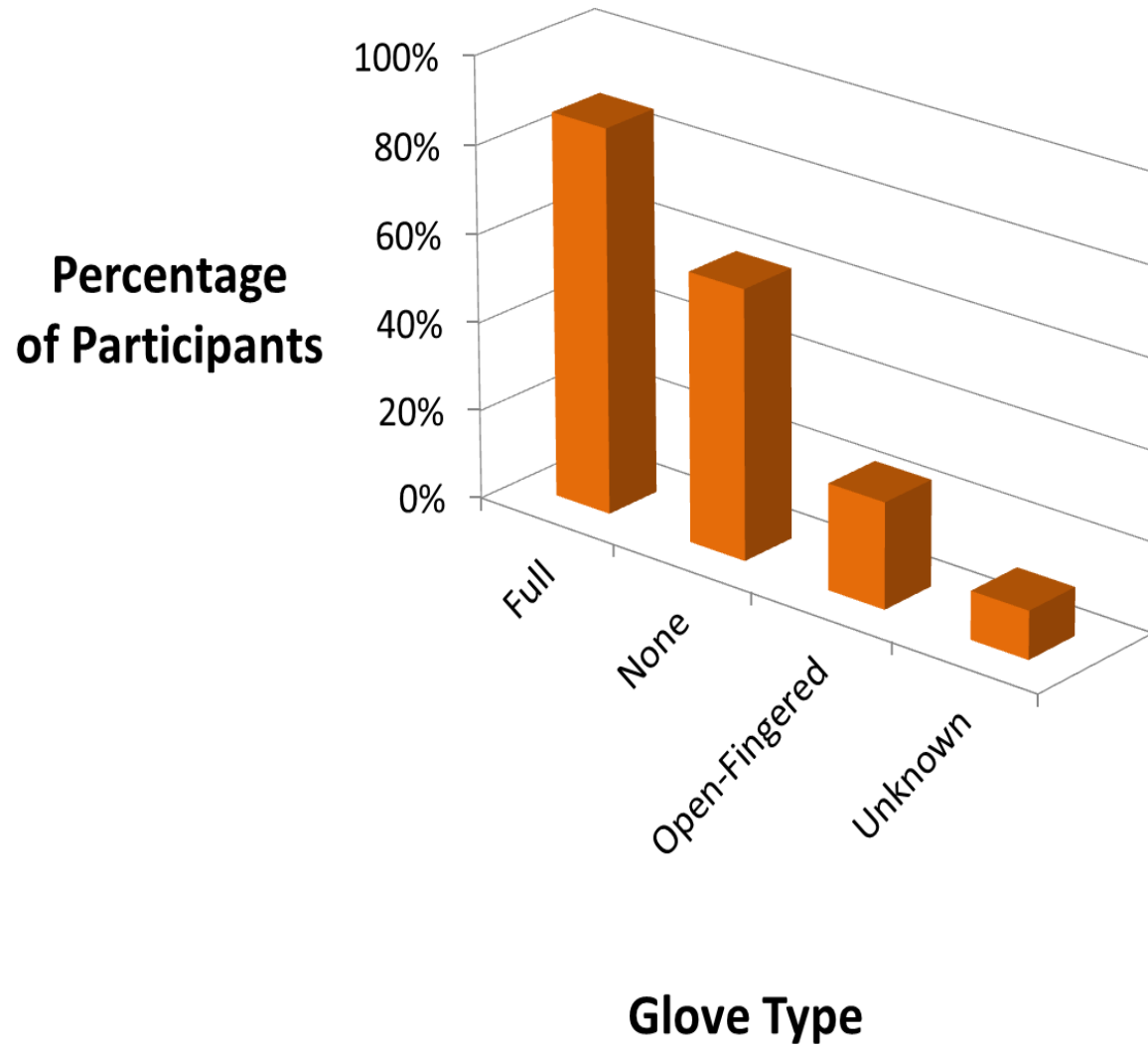
## Percentage of Participants Wearing Each Helmet Type



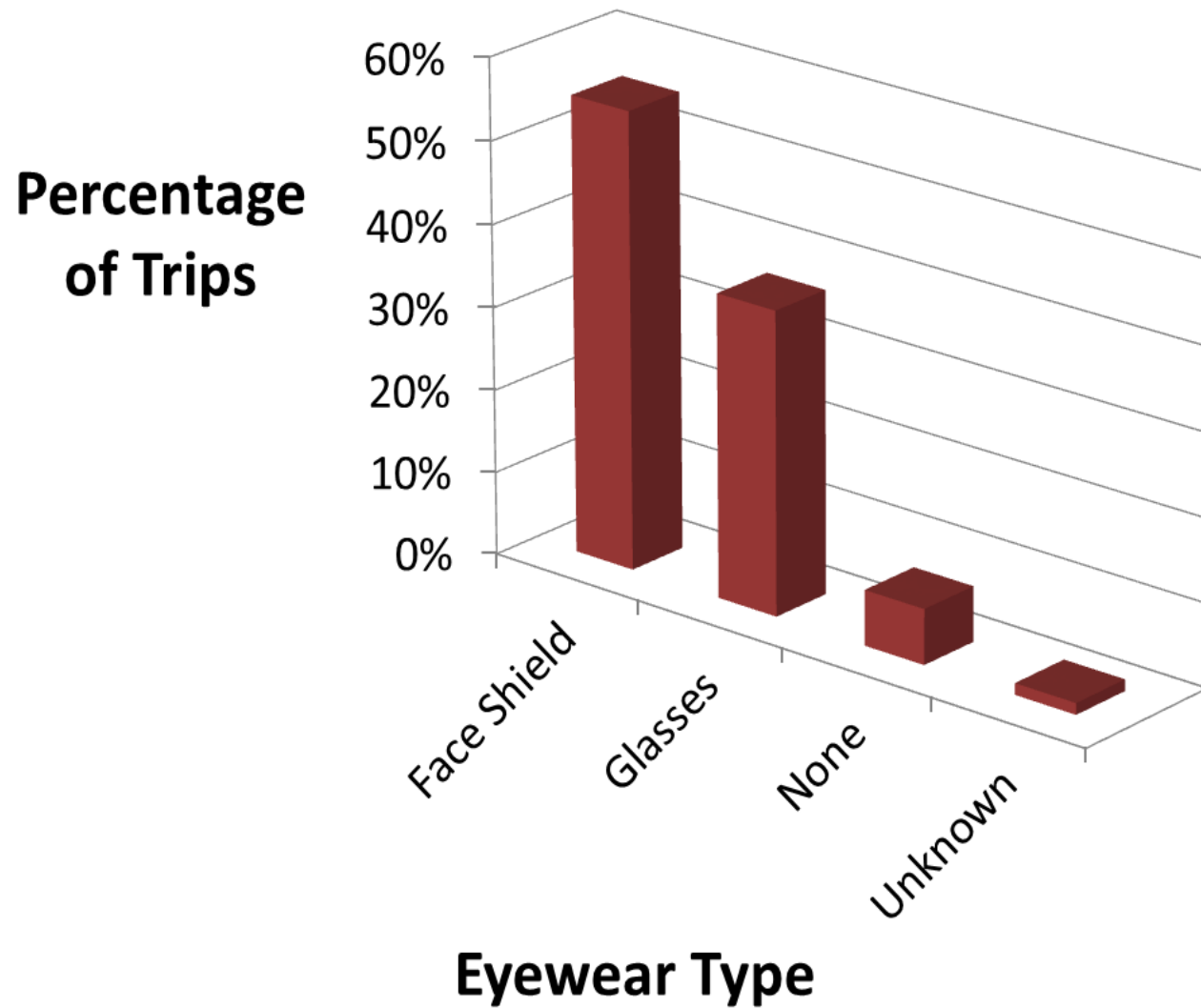
## Percentage of Trips Including Glove Type



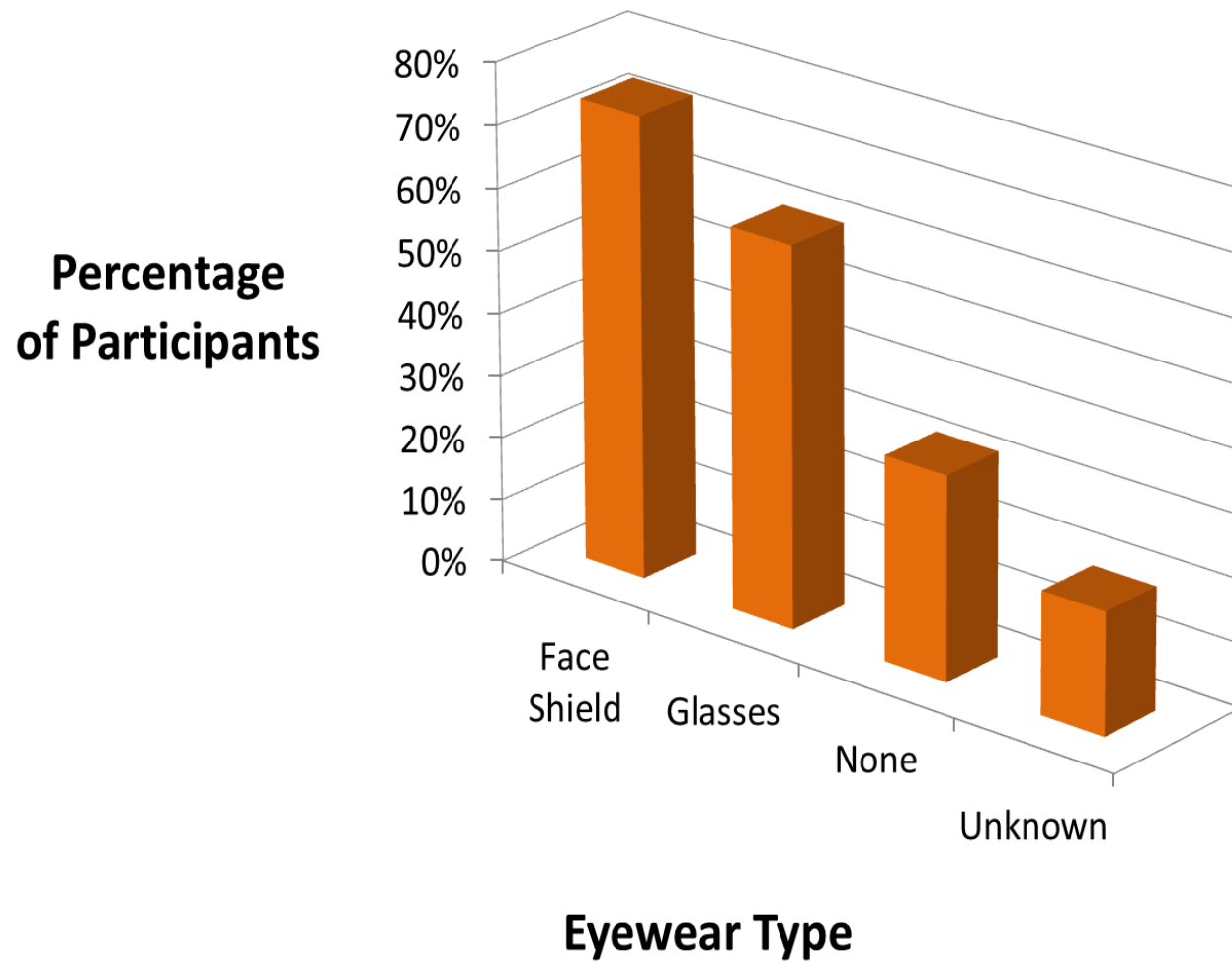
## Percentage of Participants Observed Wearing Glove Type



## Percentage of Trips Including Eyewear Type



## Percentage of Participants Observed Wearing Eyewear Type





# Conclusions

- Majority of the participants (43 of 46) tended to ride more during the day
- Wide variation in torso clothing
  - 93% of riders at some point wore full zipped jackets; 67% at some point wore short-sleeved shirts or tank tops
  - 72% of participants wore armor sometimes or always; 28% never wore armor
- 33% of participants always wore gloves; 11% never wore gloves

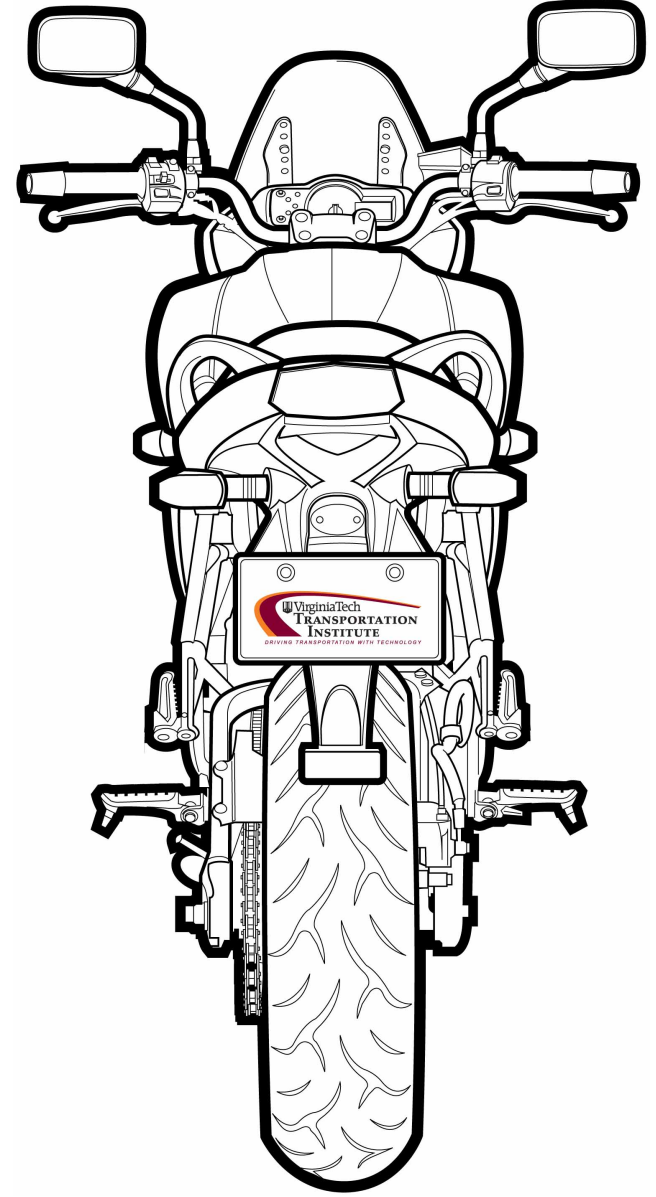
# Conclusions

- Helmet usage, even in states with no helmet law, was common
  - 78% of participants always wore helmets; no participant was always without a helmet
  - Only 4 out of the 10 riders based in states with no helmet law were observed at some point without a helmet
- Observational data indicate that participants tended to vary their choices in clothing and protective gear

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Questions?



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