



VIRGINIA TECH
TRANSPORTATION INSTITUTE
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Advancing Transportation through Innovation

AN EXPLORATORY ANALYSIS TO UNDERSTAND THE EFFECTS OF COVID-19 ON CRASHES INVOLVING SINGLE LARGE TRUCKS

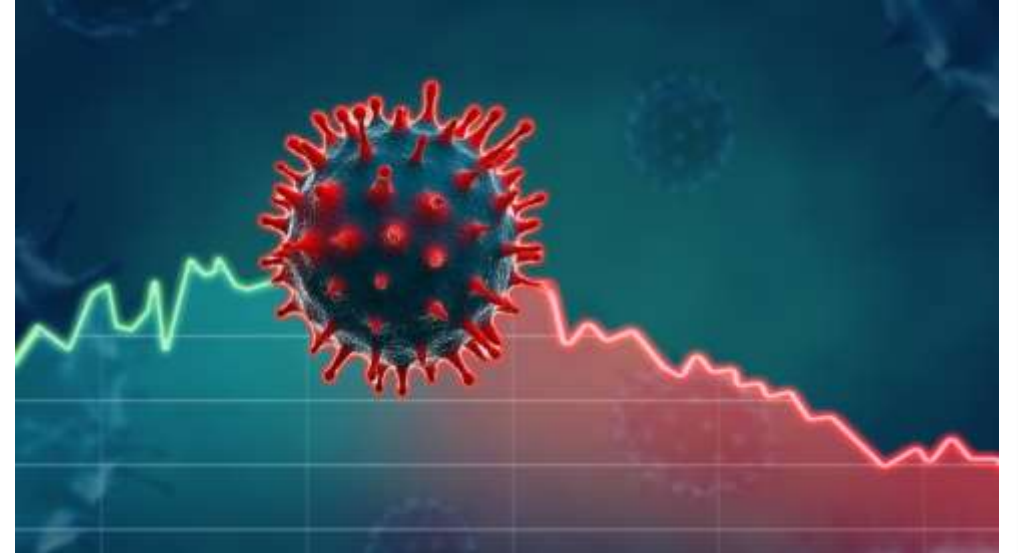
ACS60(3): TRUCK AND BUS OPERATOR HEALTH AND
WELLNESS SUBCOMMITTEE

TUESDAY, JANUARY 11, 2022
MARRIOTT MARQUIS, SALON 14 (M2)

MOUYID ISLAM, PhD

PRESENTATION OUTLINES

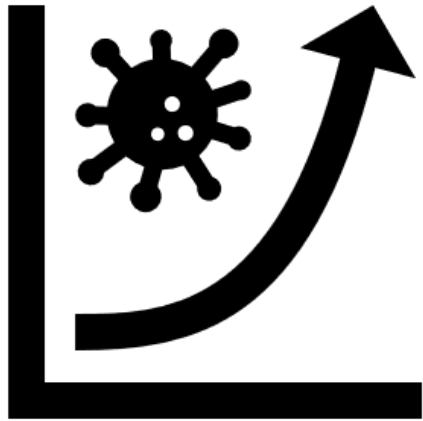
- Research Motivation
- Research Objectives
- Preliminary Results (CAR FL)
- Conclusions/Discussions



RESEARCH MOTIVATION

- The overall exposure (VMT) went down during COVID-19 (2020) travel restriction/lock-down relative to previous year (2019).
- The proportion of severe injury, particularly the fatalities, went up in 2020 relative to previous year, 2019.
- How about 2021 compared to 2020 or even 2019 (post-COVID-19!)?
- How does the travel behavior or risky driving behavior during COVID-19 (2020 or 2021) impact truck drivers' safety?

REAL PERSPECTIVES



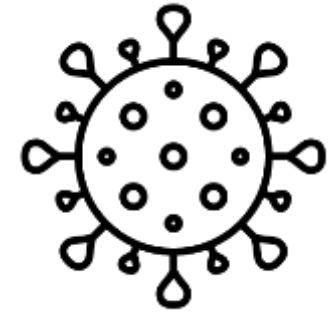
54% of Truck Drivers Smoke Compared to 21% of Adult General Population



8% of Truck Drivers Exercise Which is Much Lower compared to 49% national adult exercise average.

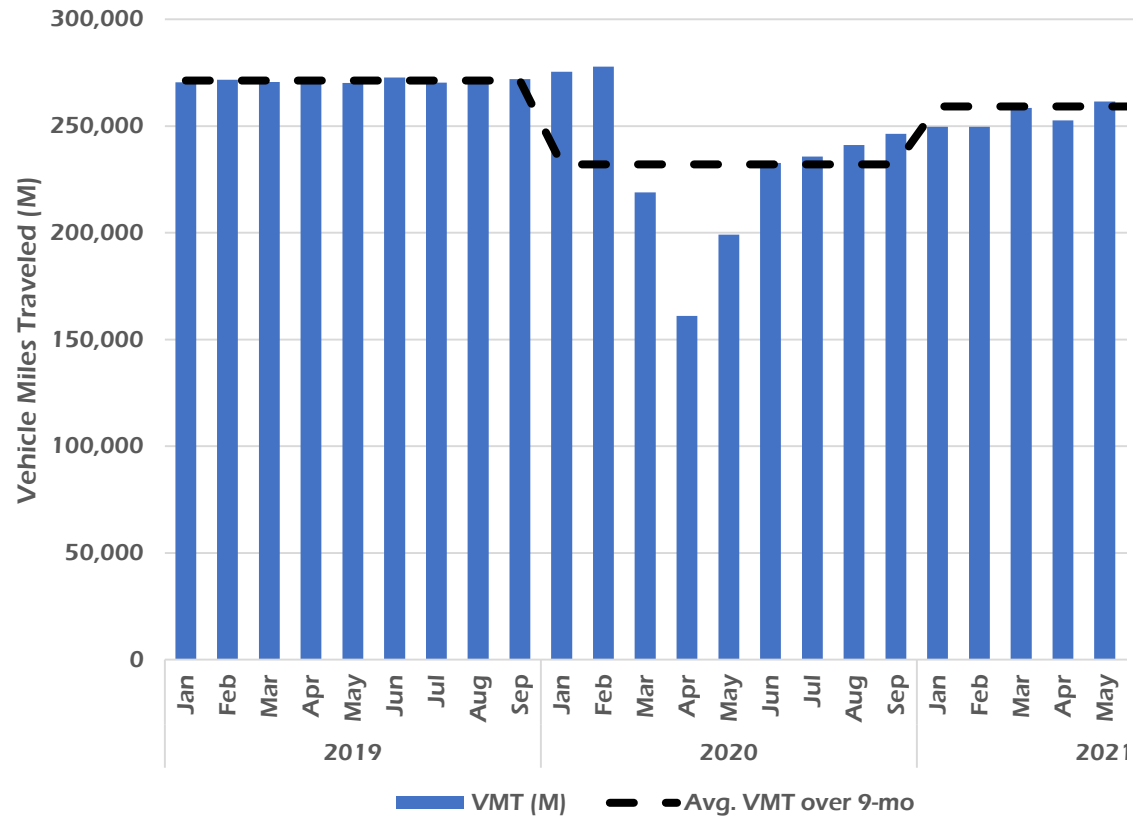


80% of Drivers Have Unhealthy Eating Habits which consist of fast food, high sodium content, and no fruits or vegetables

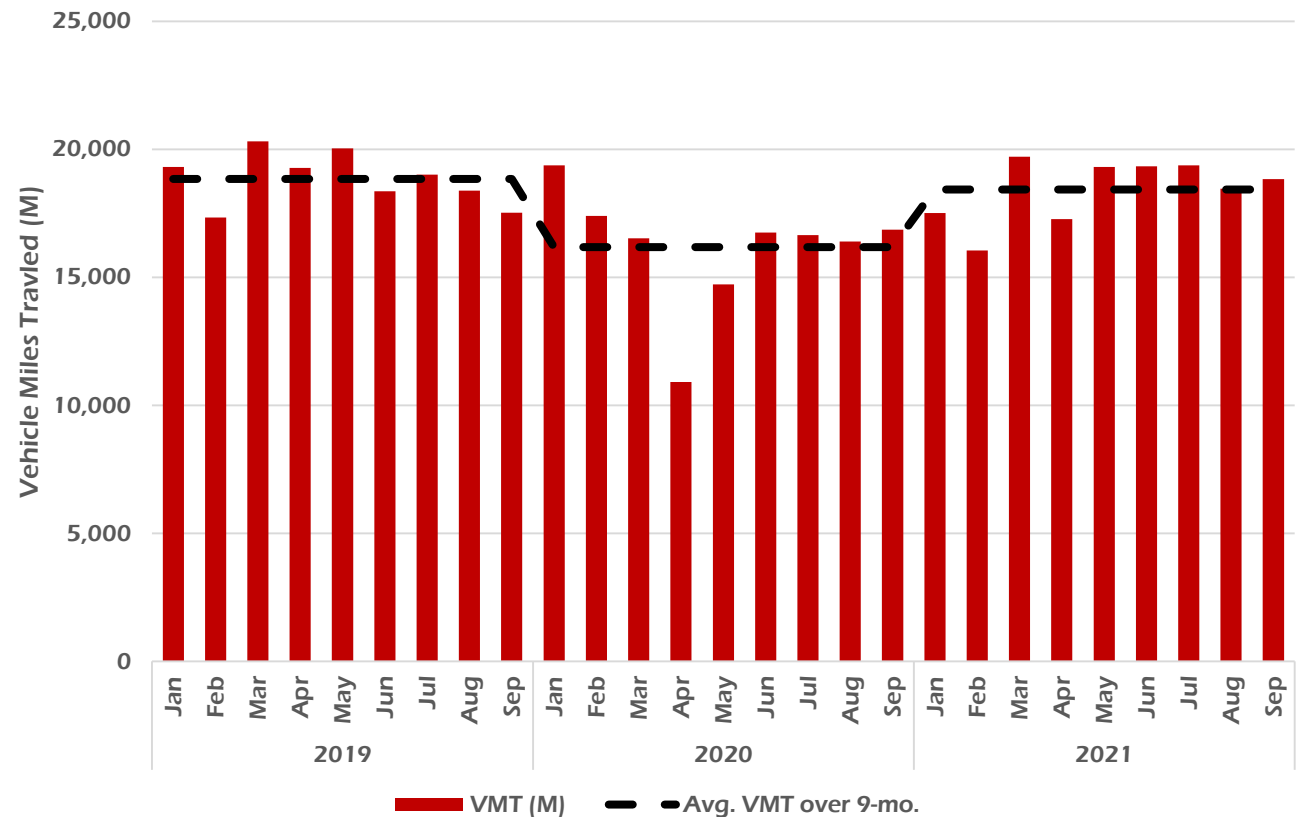


VARIATION OF TRAVEL (VMT) OVER TIME: USA VS FL

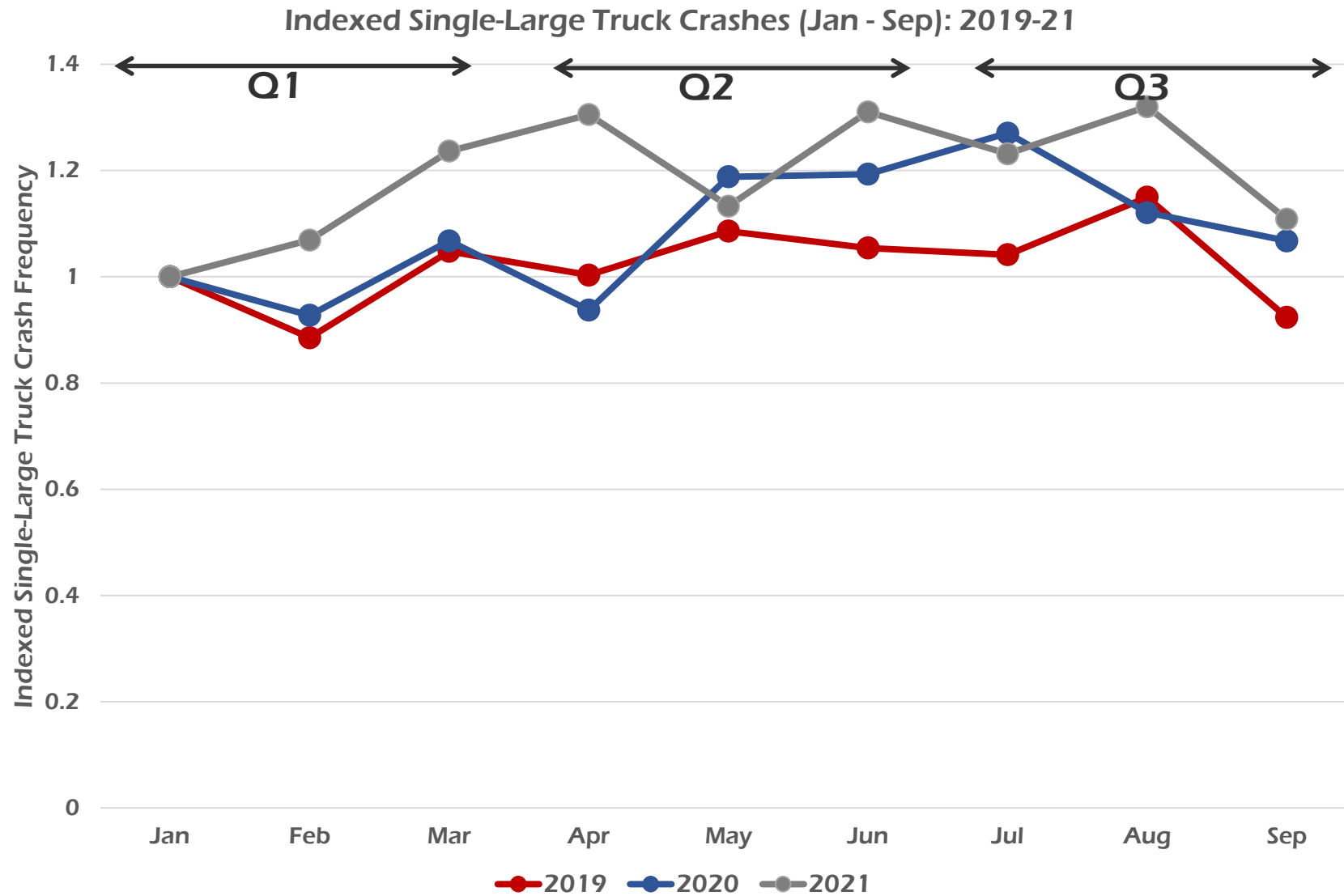
Variation of Seasonally-Adjusted VMT (M) in the USA
(Jan - Sep): 2019-21



Variation of Seasonally-Adjusted VMT (M) in FL (Jan - Sep):
2019-21

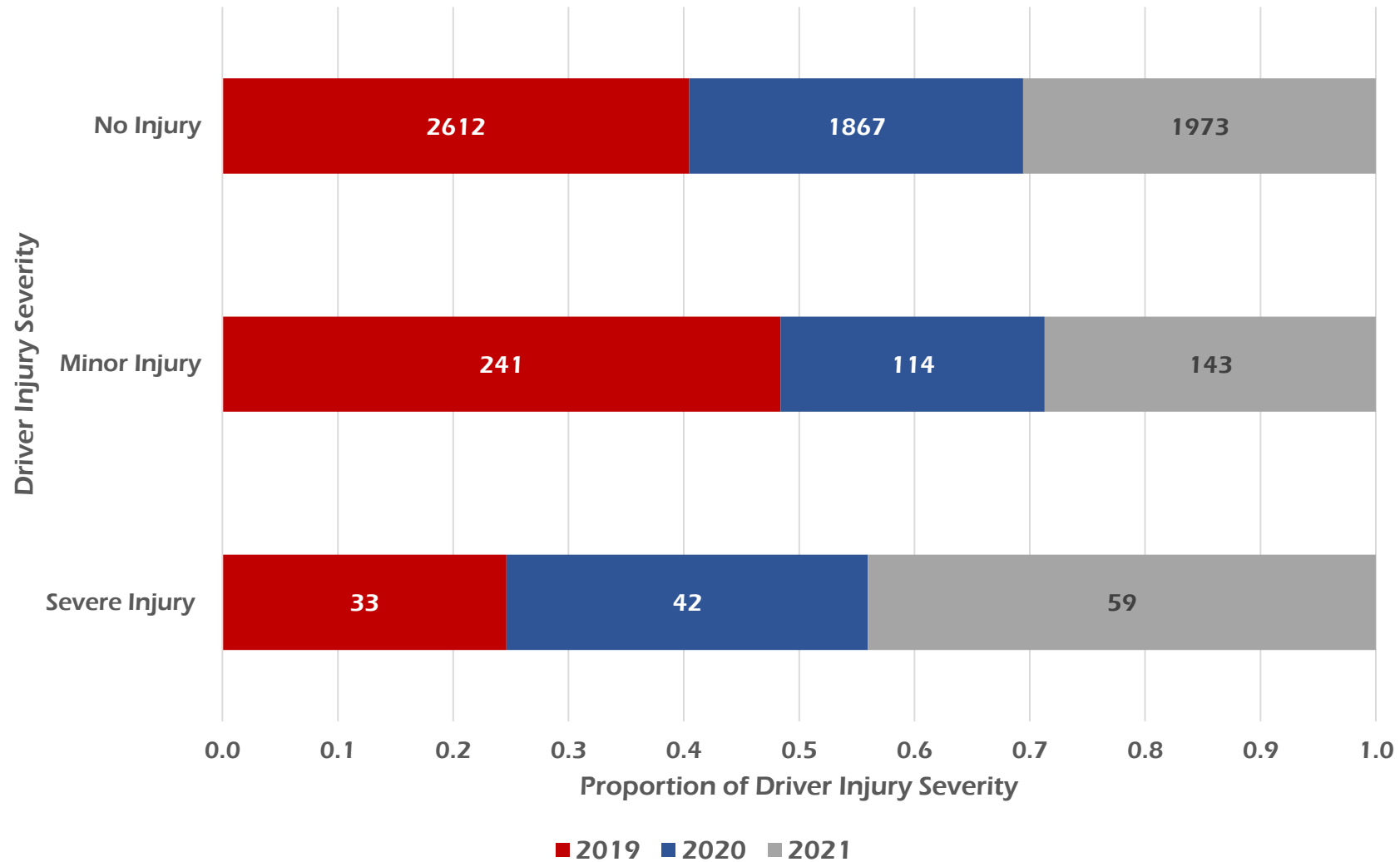


VARIATION OF TRUCK CRASHES OVER TIME



DRIVER INJURY SEVERITY OVER TIME

Driver Injury Severity in Single-Large Truck Crashes (Jan - Sep): 2019-21



RESEARCH OBJECTIVES

- Exploring FL crash data to understand the effects of COVID-19 in driver conditions, actions, and behaviors in trend of crash involvement over time: 2019 vs 2020 vs 2021 (Q1 – Q3)
- Exploring crash data to analyze the driver injury severity as the outcome of crashes during the analysis period
- Using single-truck crashes to narrow the focus on any driver behavior leading to crash involvement in the analysis period (Q1 – Q3: 2019-21)

Caveats - Disclaimer

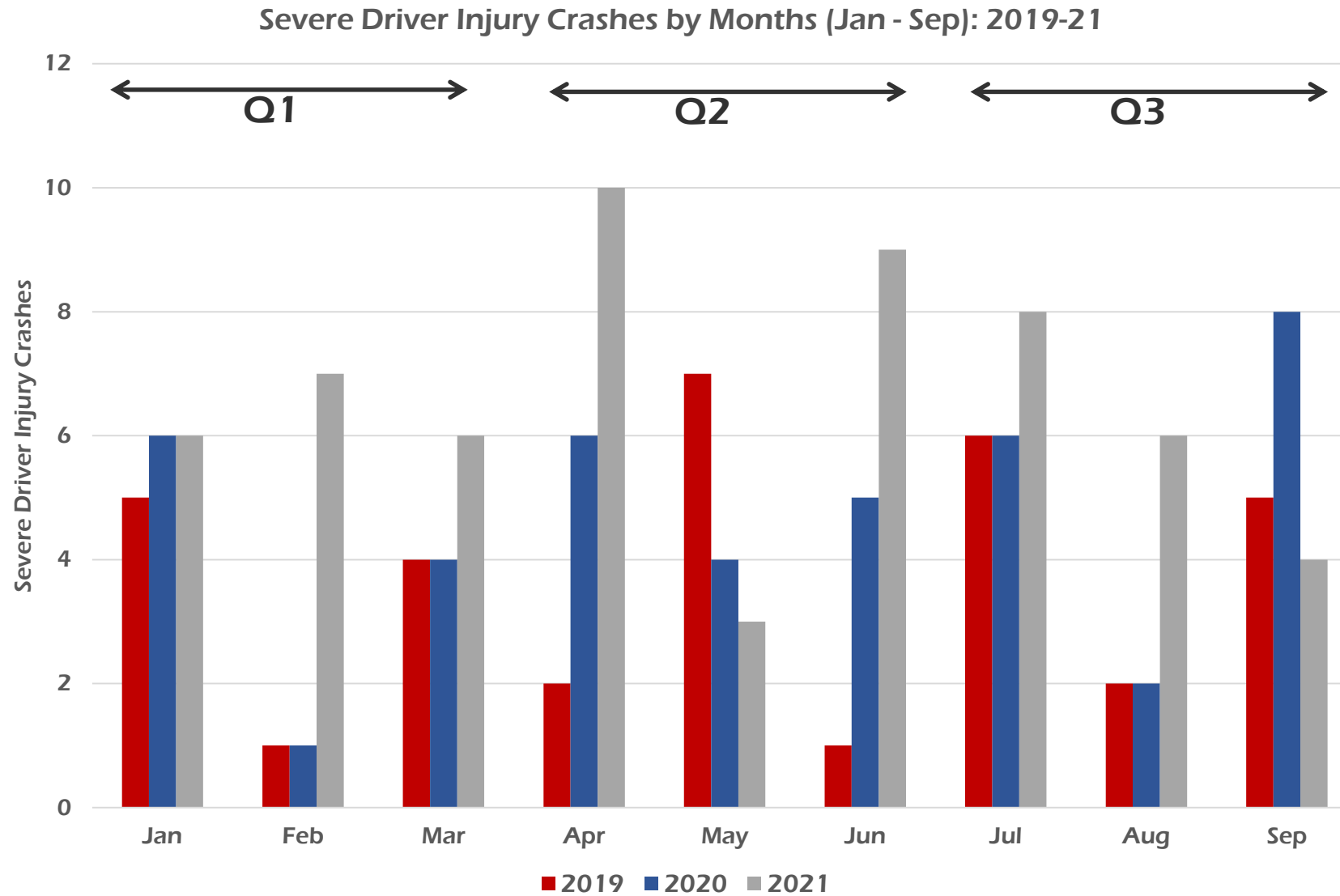
- Medical condition/history of crash involved drivers were not explored by the linking the crash with the medical data system



PRELIMINARY RESULTS

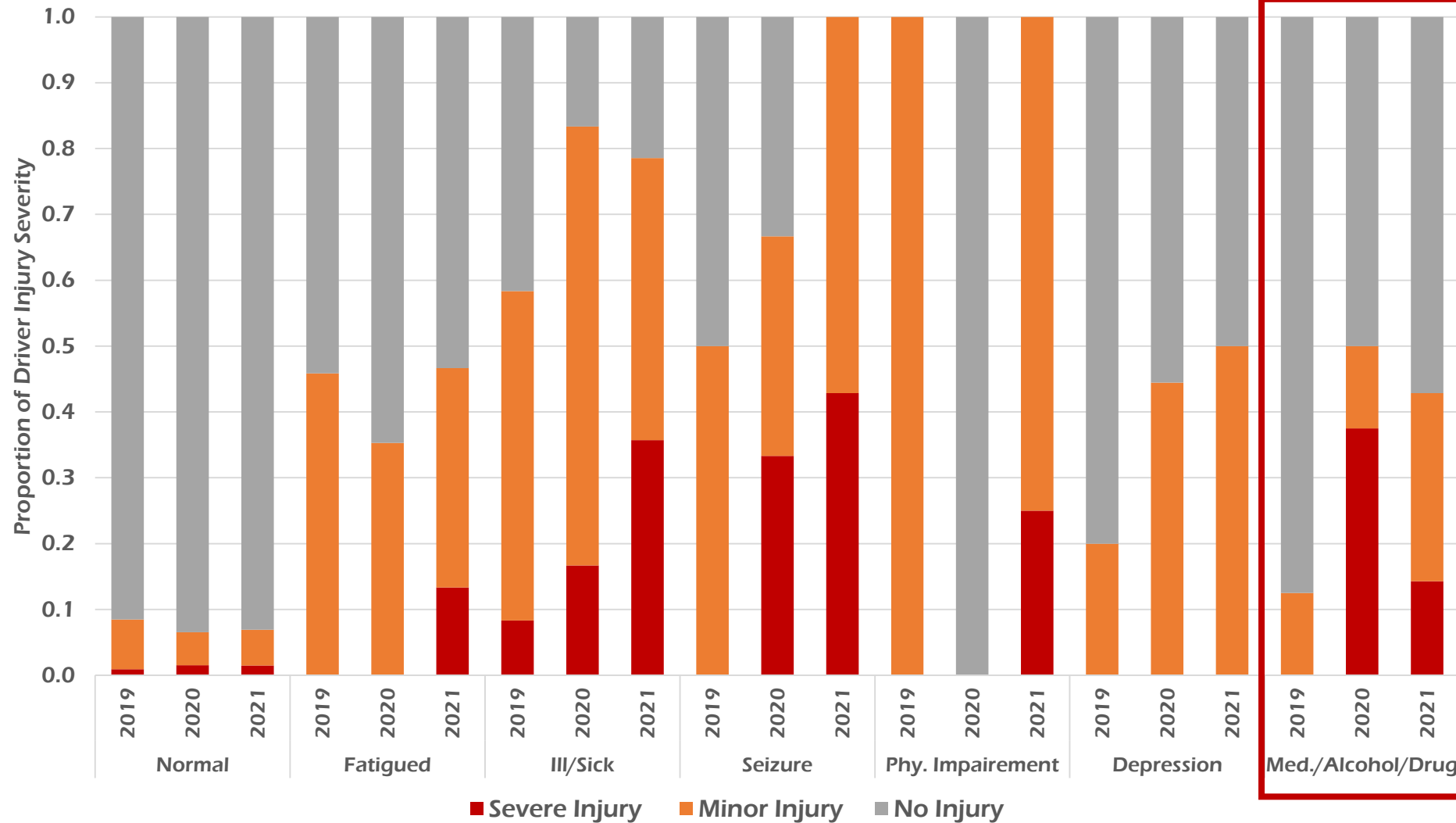
PRELIMINARY ANALYSIS OF YEAR 2019, 2020, AND 2021 (JANUARY TO SEPTEMBER)

VARIATION OF SEVERE DRIVER INJURY OVER TIME



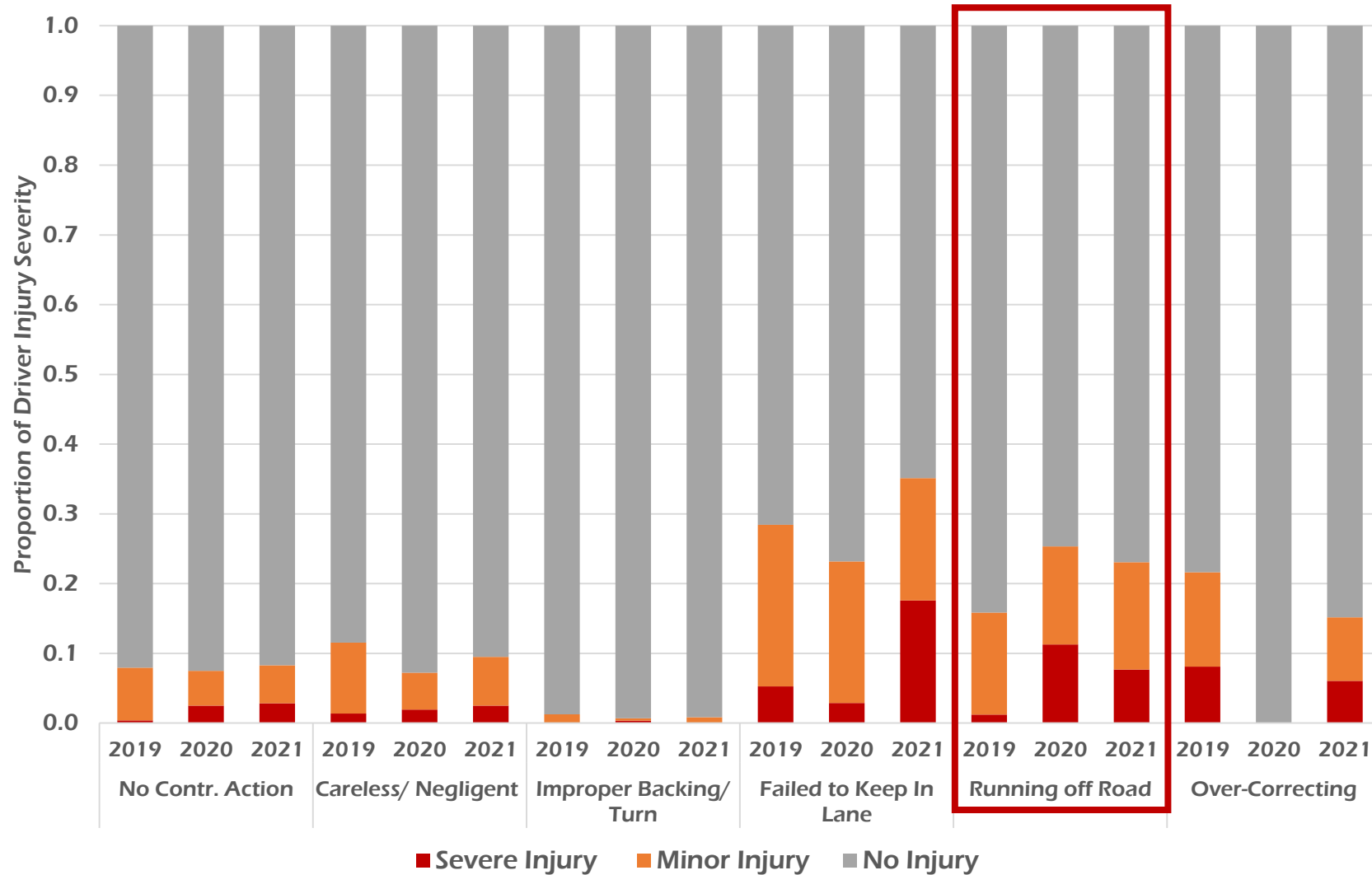
DRIVERS' CONDITIONS AT CRASHES OVER TIME

Driver Injury Severity by Drivers' Condition at the Time of Crashes

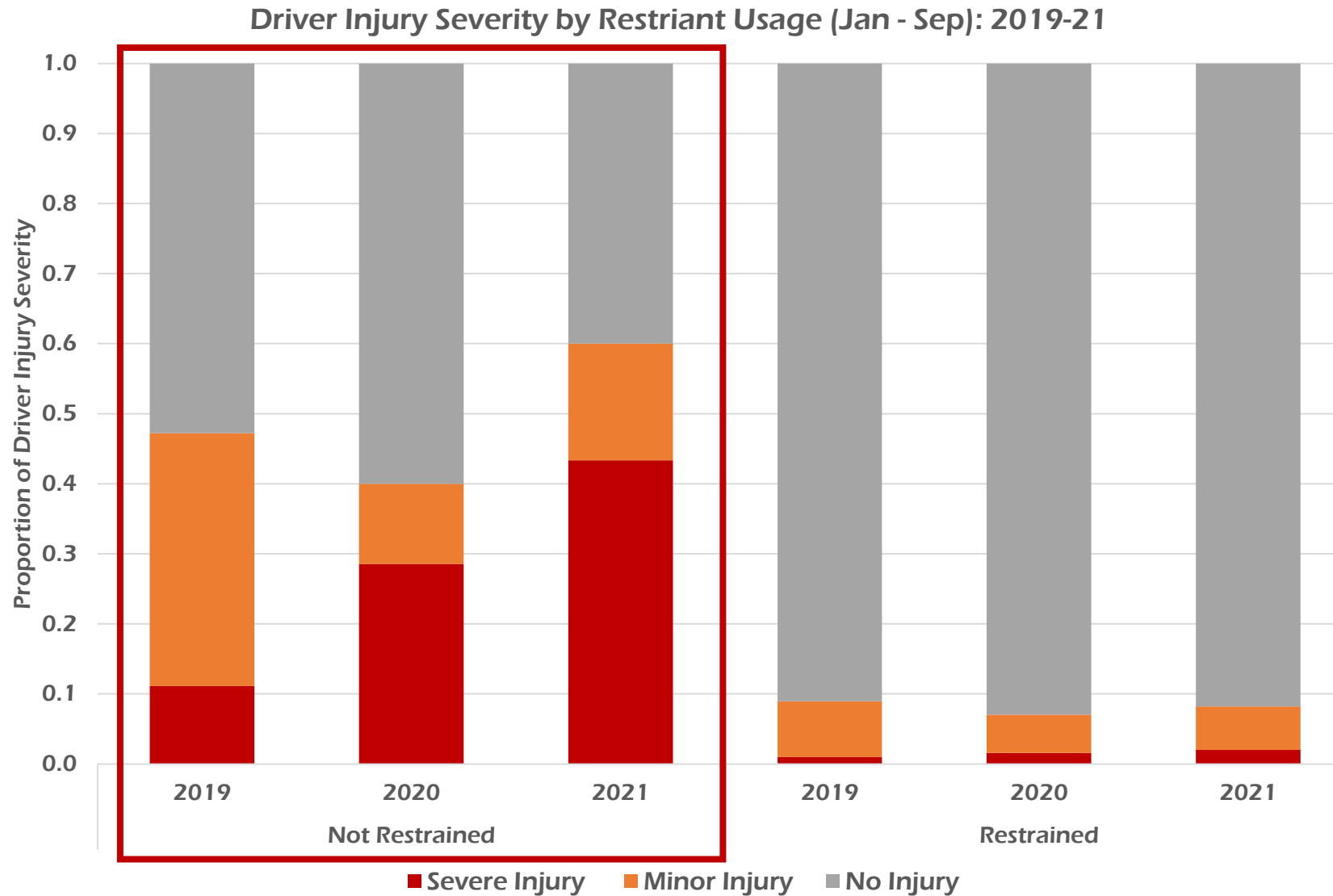


DRIVERS' ACTIONS PRIOR TO CRASHES OVER TIME

Driver Injury Severity by Drivers' Actions prior to Crashes

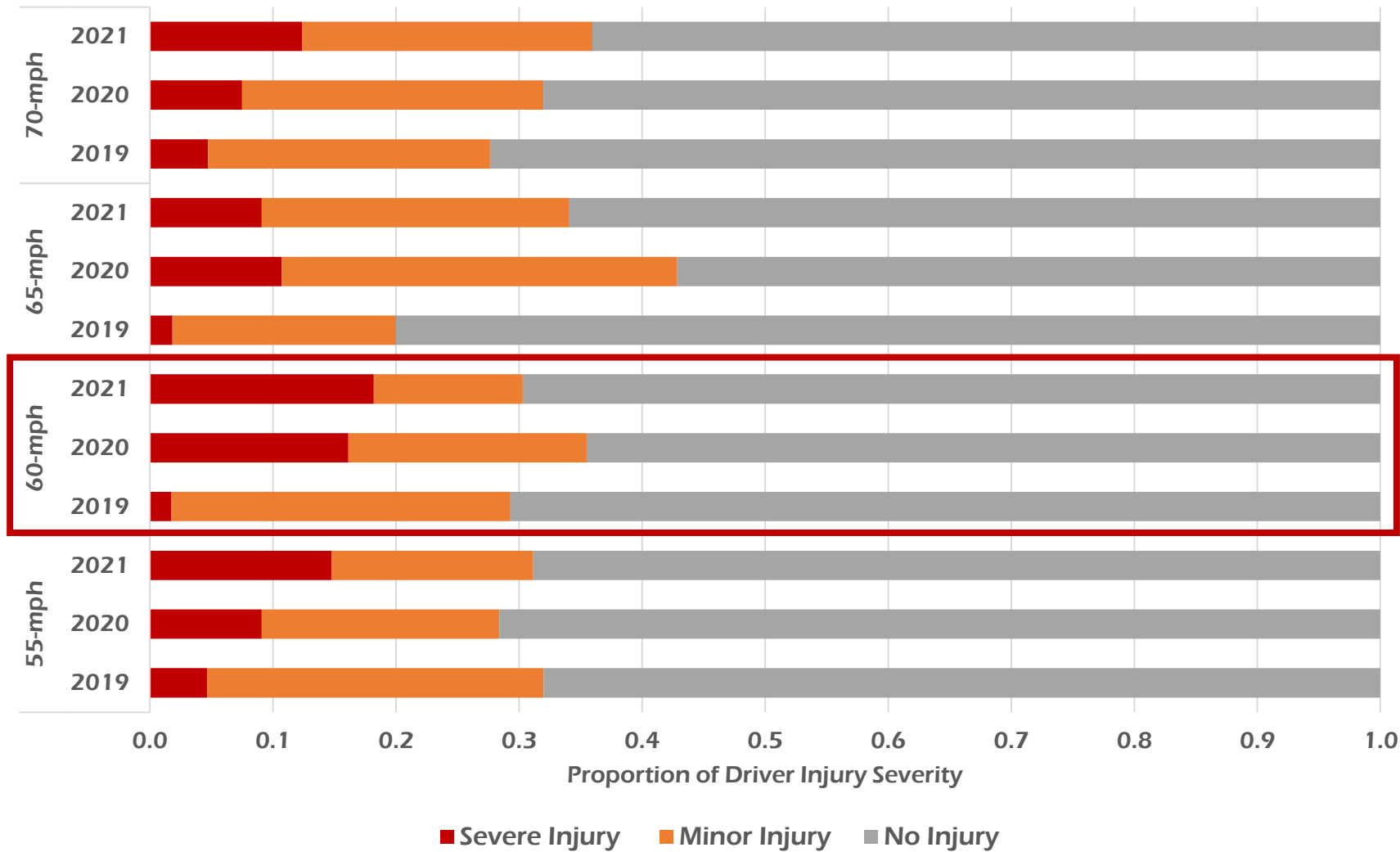


DRIVERS' INVOLVEMENT BY RESTRAINT USAGE



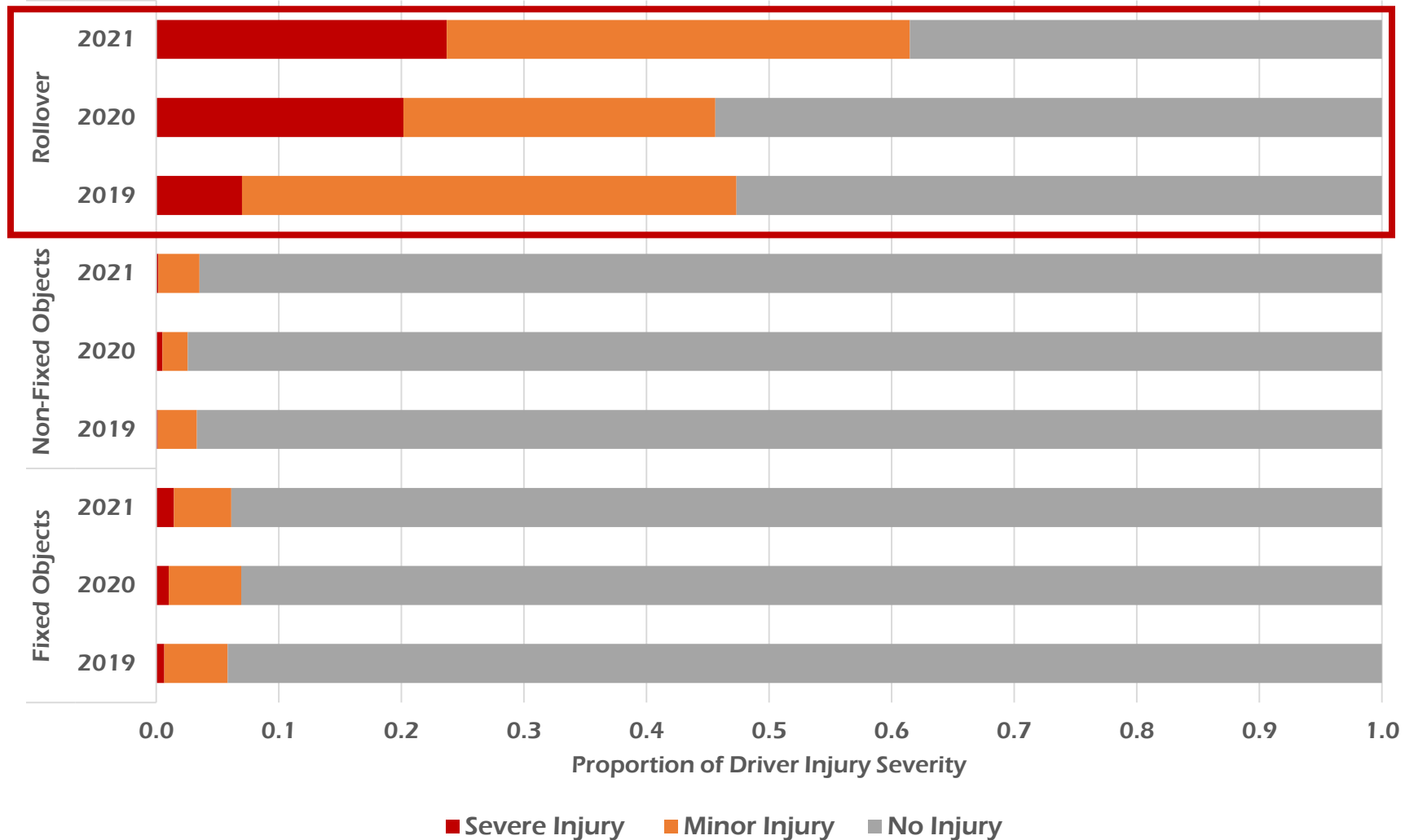
DRIVERS' INVOLVEMENT IN HIGH-SPEED FACILITIES

Driver Injury Severity by Speed Limit (High-Speed Facility) (Jan - Sep): 2019-21



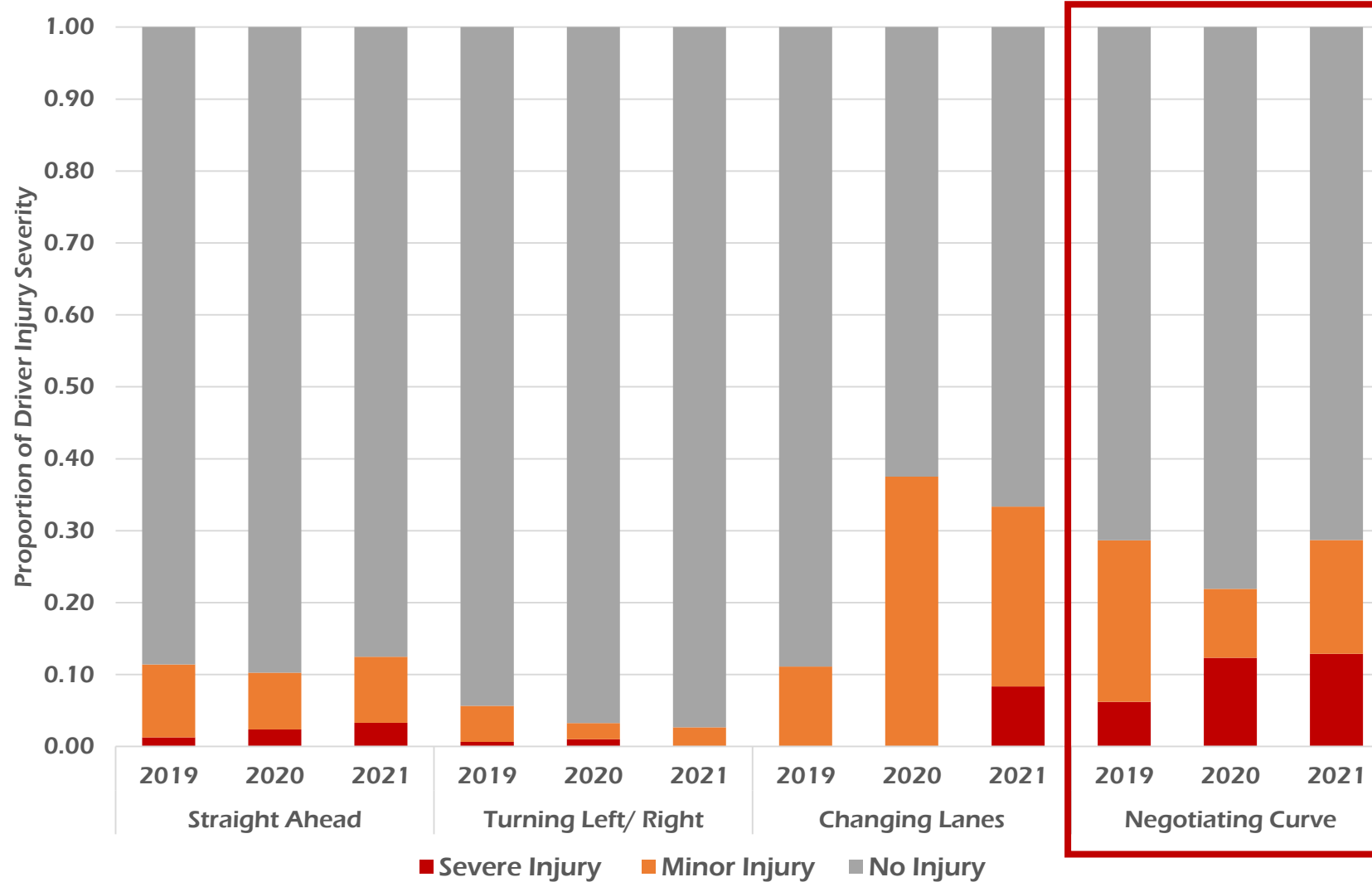
DRIVERS' INVOLVEMENTS IN HARMFUL EVENTS

Driver Injury Severity by Most Harmful Events (Jan - Sep): 2019-21



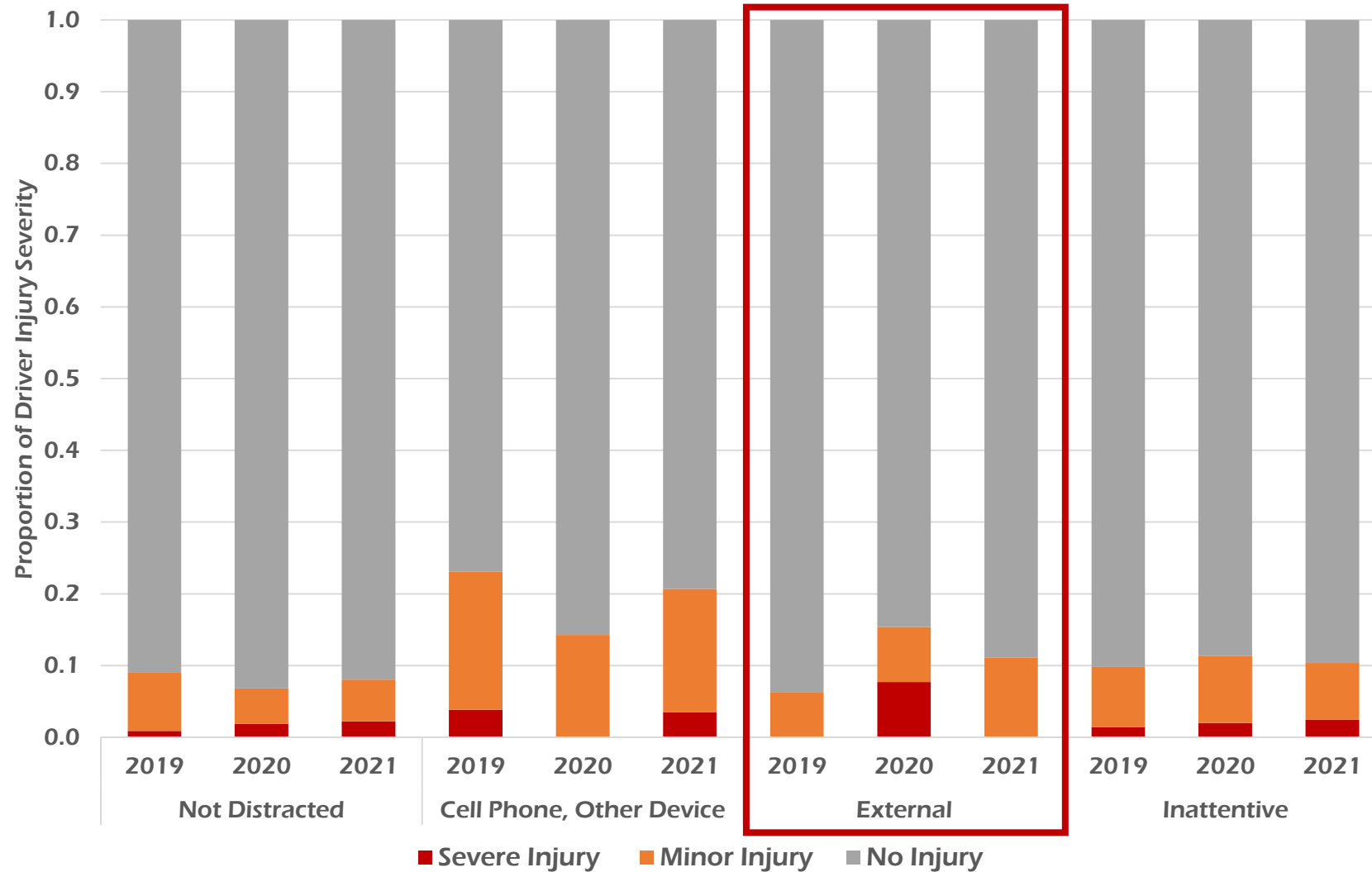
DRIVERS' INVOLVEMENTS IN VEHICLE MANEUVERS

Driver Injury Severity by Vehicle Maneuvers (Jan - Sep): 2019-21



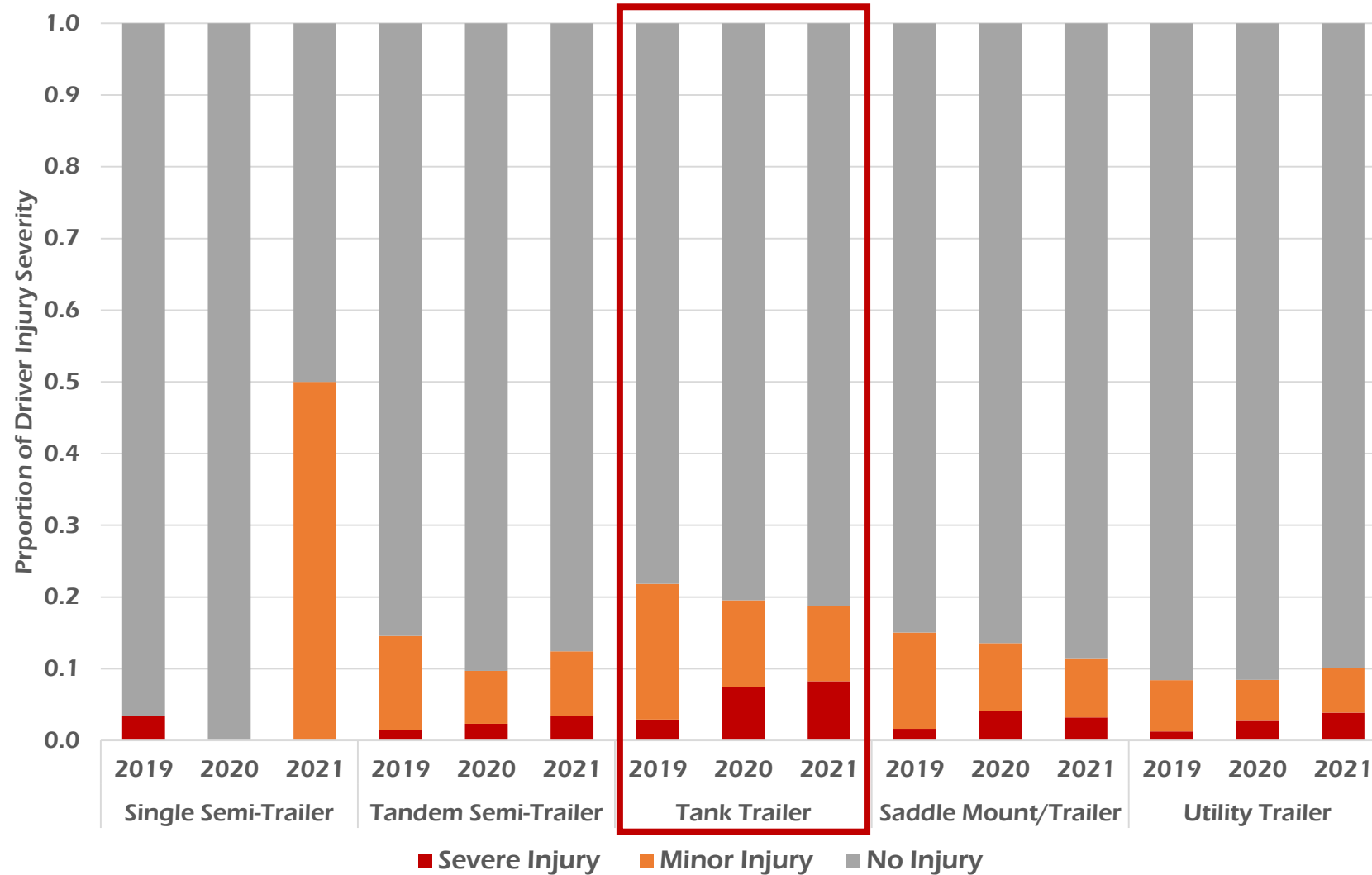
DRIVERS' INVOLVEMENTS BY DISTRACTION

Driver Injury Severity by Distracted Driving Condition (Jan - Sep): 2019-21



DRIVERS' INVOLVEMENTS BY TRUCK-CONFIGURATION

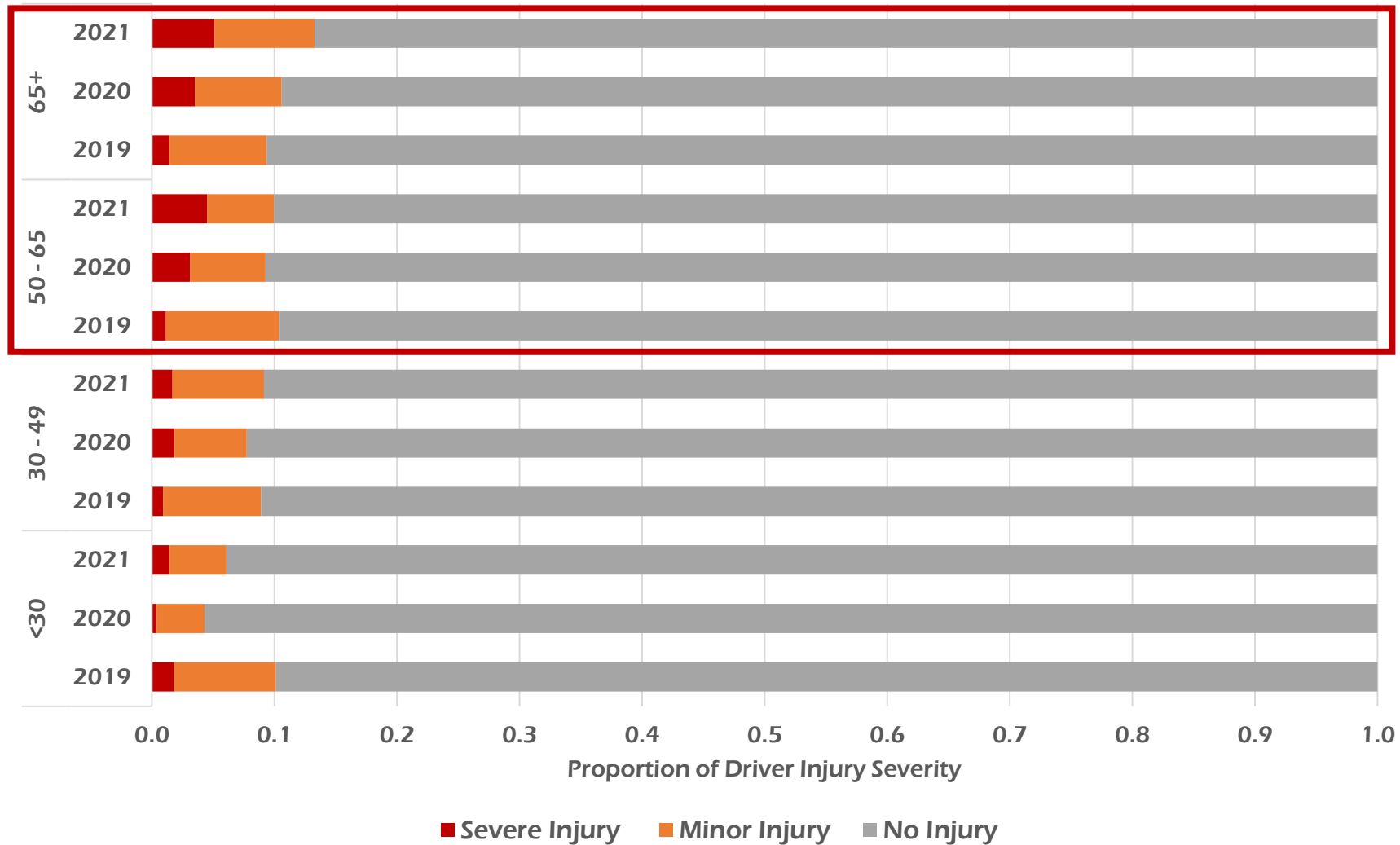
Driver Injury Severity by Truck Configuration (Jan - Sep): 2019-21



DEMOGRAPHICS AND DIVING HISTORY

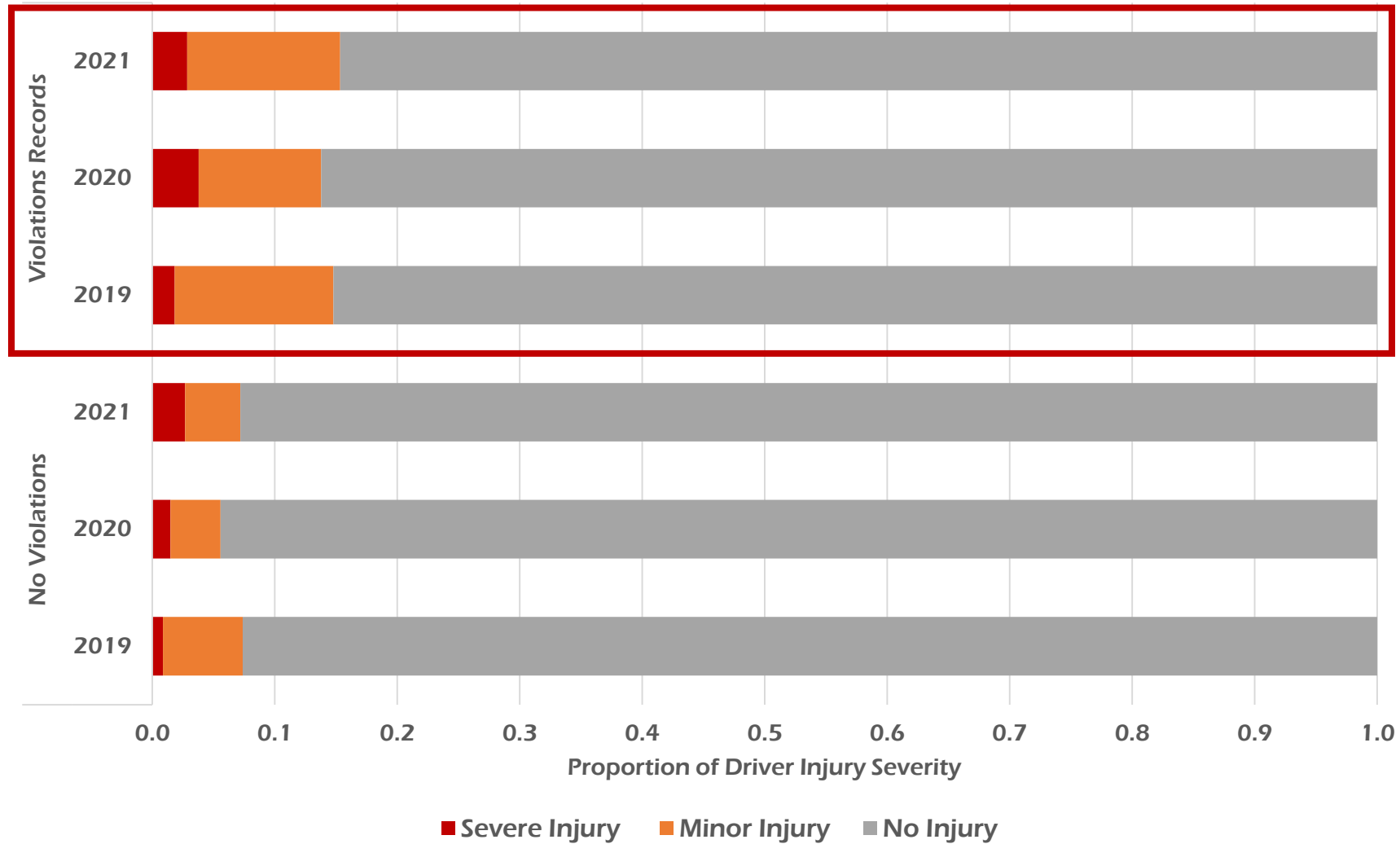
DRIVERS' INVOLVEMENT BY AGE/ AGE-GROUP

Driver Injury Severity by Age Group (Jan - Sep): 2019-2021



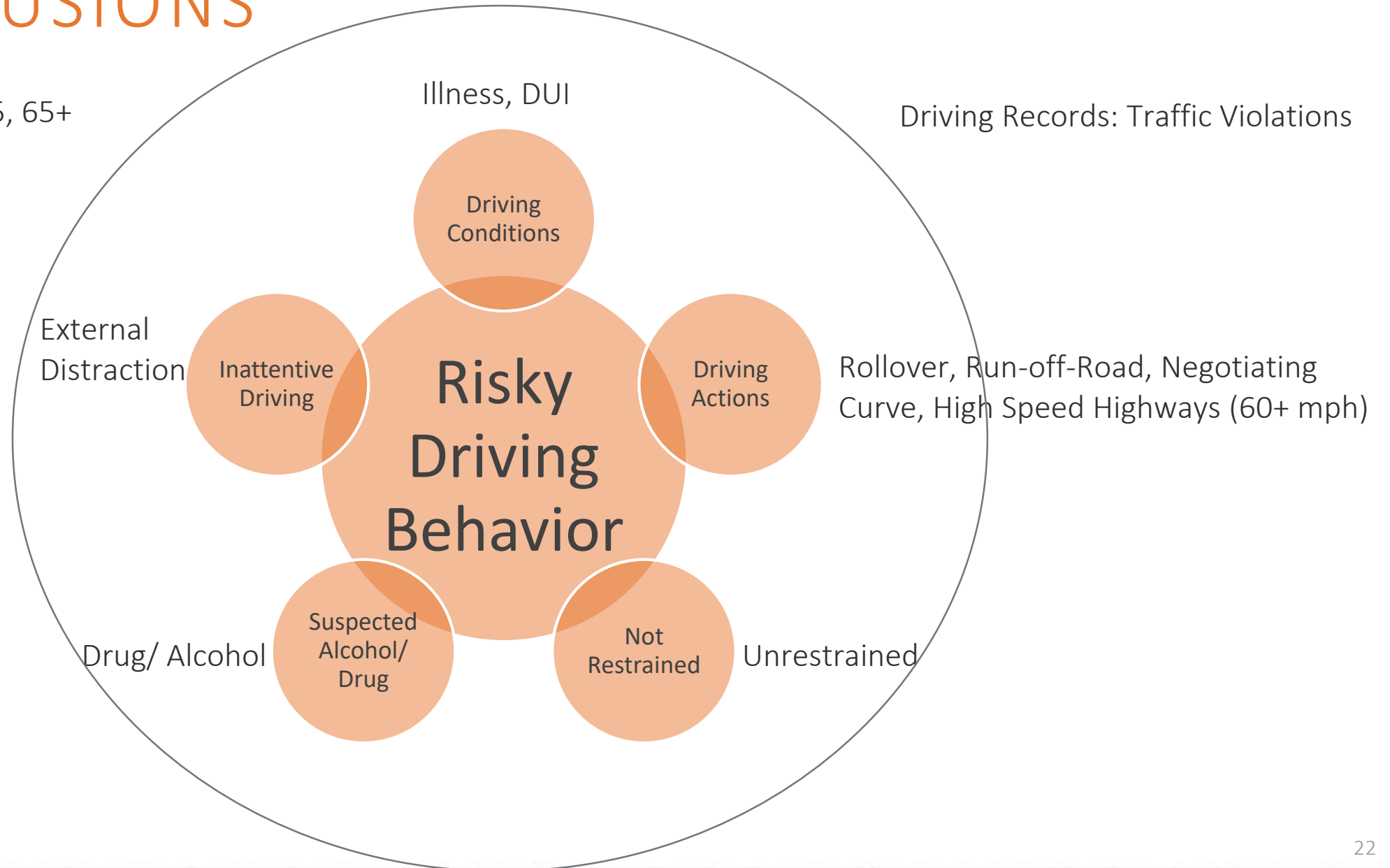
DRIVERS' INVOLVEMENT BY DRIVING VIOLATIONS

Driver Injury Severity by Violation History



CONCLUSIONS

Age Group: 50-65, 65+



Questions?

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