The role of Emotional Intelligence in risky driving amongst CDL drivers

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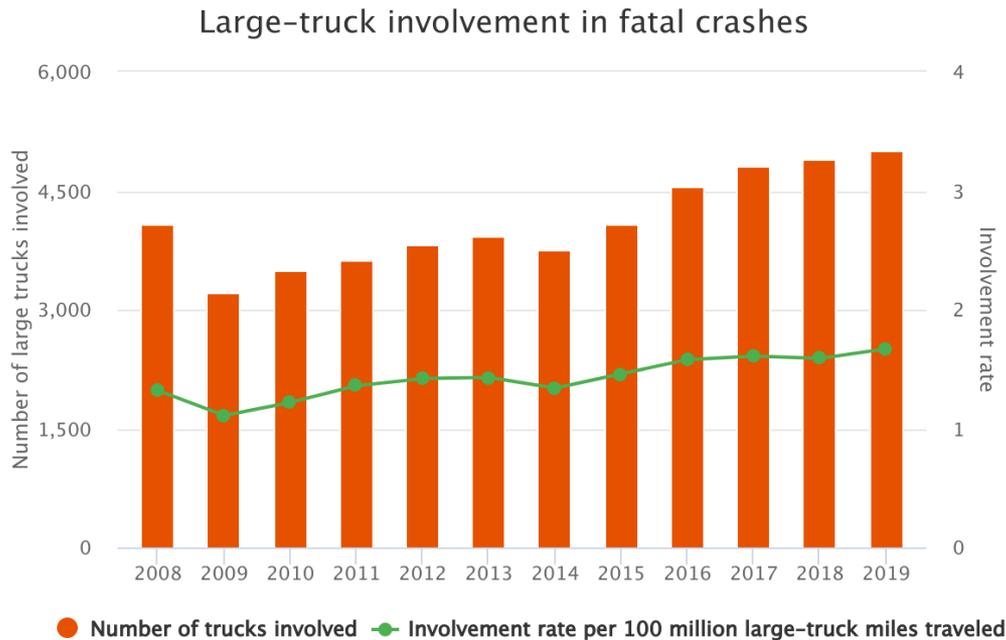Jubaer.ahmed@colostate.edu

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Vision Zero

"Vision Zero is a strategy to eliminate all traffic fatalities and severe injuries, while increasing safe, healthy, equitable mobility for all."

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Commercial Drivers

Large–truck involvement in fatal crashes

Number of large trucks involved / Involvement rate

● Number of trucks involved —●— Involvement rate per 100 million large–truck miles traveled

- "Large Trucks" (CDL) account for 4% of all registered vehicles.

- But account for a disproportion of fatal crashes (10%).

- Trend is increasing in term of both number and rate of involvement.

Large Trucks (NSC): https://injuryfacts.nsc.org/motor-vehicle/road-users/large-trucks/

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Risk Factors

- Exposure
- Exposure Factors
  - Duration
  - Time-of-day
  - Weather
- Behavior
- Behavior Factors
  - Skill
  - Personality
  - Emotion

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Emotion

- **Emotions** influence (motivate) behavior.

- **Negative Emotions** are associated with dangerous driving.

- **Emotion Regulation (lack of)** predicts dangerous driving.

Detweiler-Bedell & Salovey, 2002; Dula & Ballard, 2003; James & Nahl, 2000; Denson et al., 2012; Magar et al., 2008; Roberton et al., 2012.

Dangerous Driving

Scale	DDDI (Dula & Ballard, 2003)	DBQ (Reason et al., 1990)
Items	28 questions, rated on a 5-point Likert scale	36 questions, rated on a 5-point Likert scale
Behaviors Measured	• DDDI Risky Driving (I will cross double yellow lines to see if I can pass a slow-moving car) • DDDI Aggressive Driving (I make rude gesture/I verbally insult drivers who annoy me) • DDDI Negative Emotional Driving (I drive when I am angry or upset)	• DBQ Violations (Deliberately disregard the speed limit) • DBQ Errors (Ignore a yield sign and almost collide)

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Emotional Intelligence

Definition

- The ability to recognize and manage our emotions (and those of others).

- The ability to use these insights to regulate our thoughts and behaviors.

(Mayer et al., 1990)

Measure

- Trait Emotional Intelligence Short Form (TEIQue-SF)

TEIQue-SF

Instructions: Please answer each statement below by putting a circle around the number that best reflects your degree of agreement or disagreement with that statement. Do not think too long about the exact meaning of the statements. Work quickly and try to answer as accurately as possible. There are no right or wrong answers. There are seven possible responses to each statement ranging from 'Completely Disagree' (number 1) to 'Completely Agree' (number 7).

1.........2..........3..........4..........5..........6..........7
Completely Disagree   **Completely Agree**

	1	2	3	4	5	6	7
1. Expressing my emotions with words is not a problem for me.	1	2	3	4	5	6	7
2. I often find it difficult to see things from another person's viewpoint.	1	2	3	4	5	6	7
3. On the whole, I'm a highly motivated person.	1	2	3	4	5	6	7
4. I usually find it difficult to regulate my emotions.	1	2	3	4	5	6	7

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National Survey

CDL panel (n = 595)	**Non-CDL panel (n = 615)**
• Valid U.S. CDL (required)	• Valid U.S. regular license
• employed full time as a "commercial truck driver"	
• 49.9% female	• 50.3% female
• 49.2% young	• 50.2% young
• Age = 29.2 years	• Age = 31.2 years
• **Weekly mileage = 345**	• **Weekly mileage = 100**

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Dangerous Driving - Male
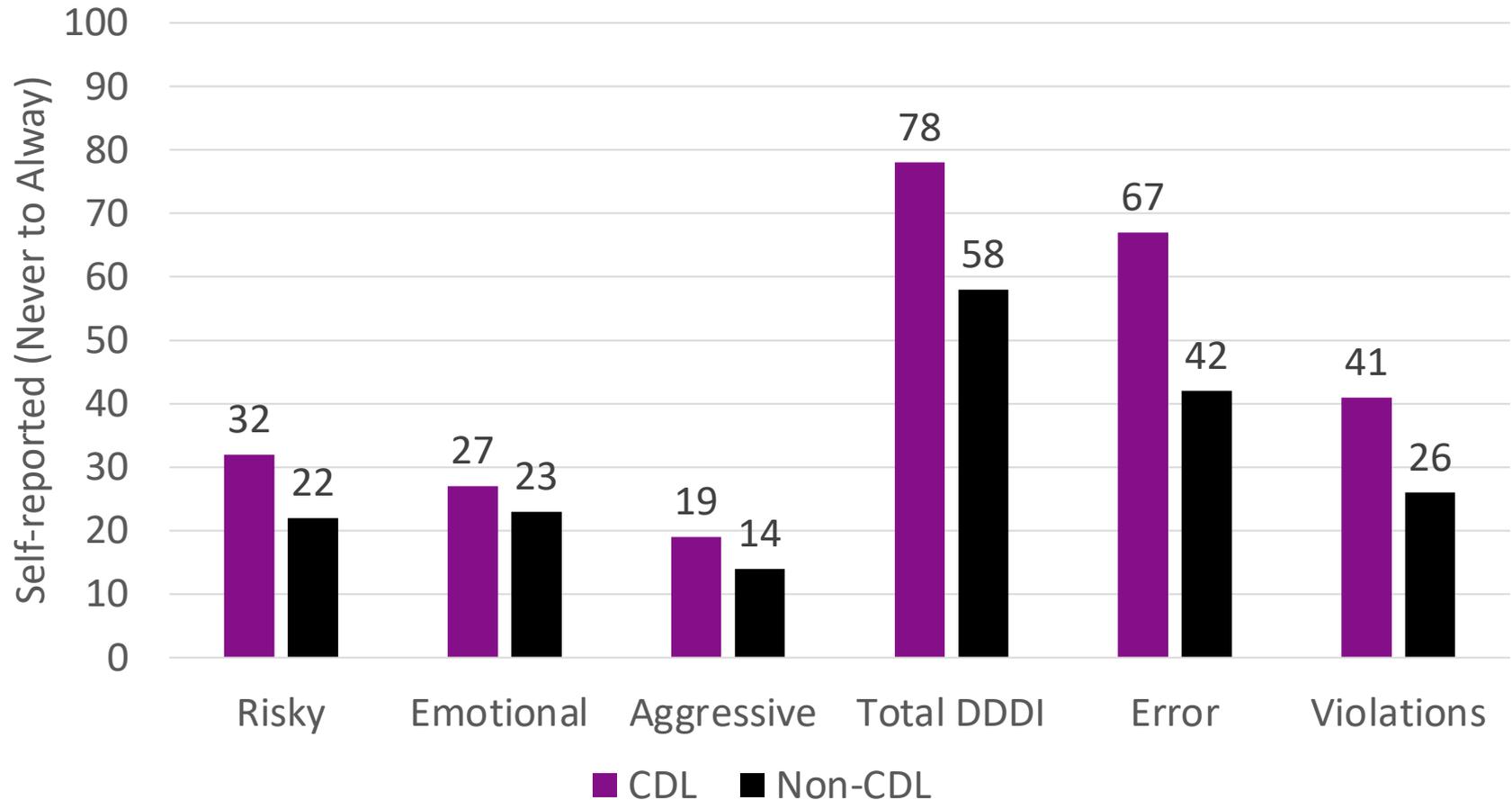
[F(5,594) = 33.57, p < .001]

Dangerous Driving - Female
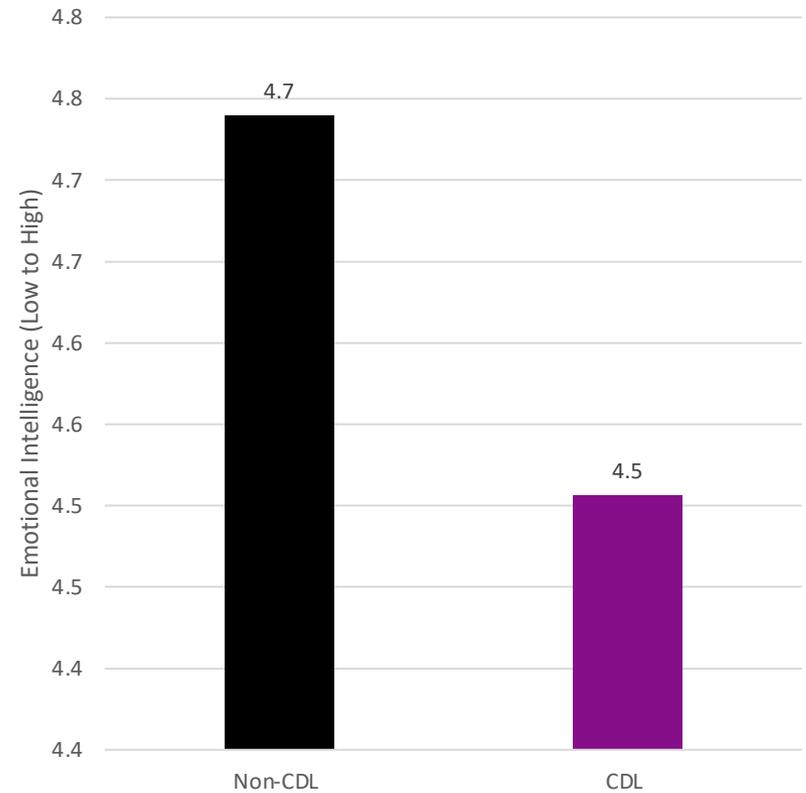

[F(5,595) = 19.48, p < .001]

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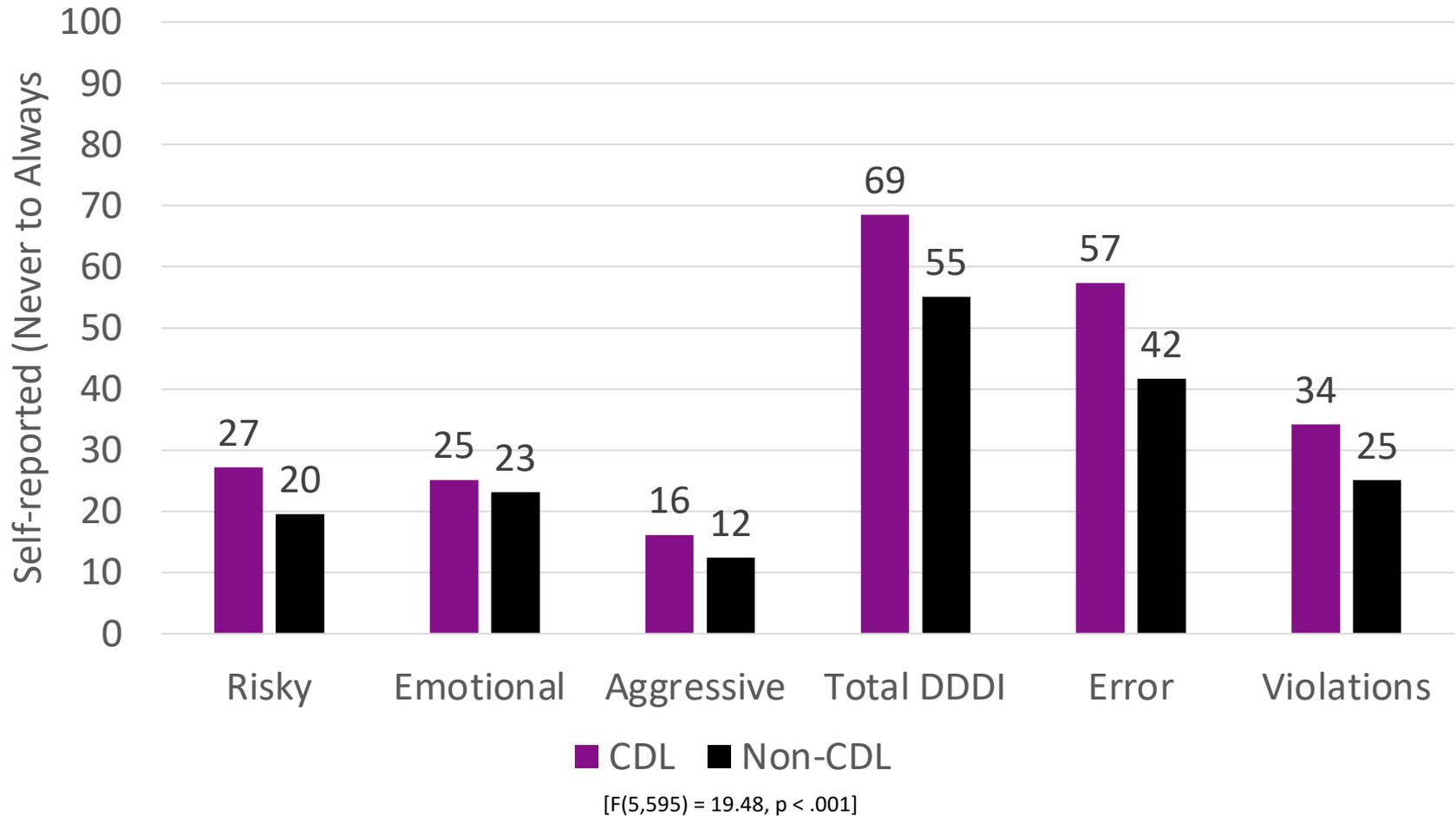
Emotional Intelligence

Males
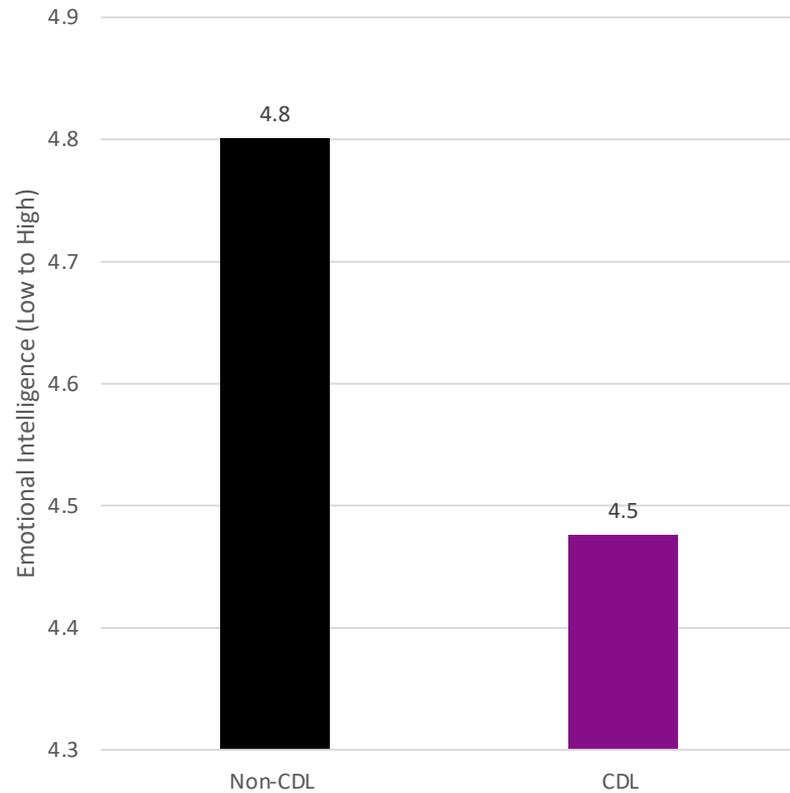
[F(1,598) = 22.29, p < .001]

Females

[F(1,599) = 8.90, p = .003]

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Correlations

Variable	Age	Gender	Aggressive	Emotional	Risky	Errors	Violations
Age	--	--	--	--	--	--	--
Gender	-.072[*]	--	--	--	--	--	--
Aggressive Driving	-0.03	-.133[**]	--	--	--	--	--
Emotional Driving	-0.02	-0.05	.745[**]	--	--	--	--
Risky Driving	-0.05	-.147[**]	.843[**]	.751[**]	--	--	--
Driving Errors	-.102[**]	-.094[**]	.752[**]	.638[**]	.838[**]	--	--
Driving Violations	-.102[**]	-.120[**]	.775[**]	.665[**]	.863[**]	.949[**]	--
Total EI	.106[**]	-0.01	-.401[**]	-.331[**]	-.414[**]	-.441[**]	-.418[**]

Prediction

Dependent Variable	R^2	Independent Variable	Standardized DV		Unstandardized DV Coeff.
			Coeff.	t-value	
Aggressive Driving	0.225	Gender: Male	0.389	4.982**	2.707
		Total EI	-0.646	-12.118**	-4.492
Emotional Driving	0.114	Gender: Male	0.231	2.756*	1.635
		Total EI	-0.470	-8.203**	-3.321
Risky Driving	0.225	Gender: Male	0.397	4.980**	4.534
		Total EI	-0.654	-12.010**	-7.460
Driving Errors	0.233	Gender: Male	0.351	4.39**	9.187
		Total EI	-0.695	-12.595**	-18.193
Driving Violations	0.233	Gender: Male	0.389	4.866**	5.811
		Total EI	-0.675	-12.381**	-10.086

**p-value < .001

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Conclusions

- CDL drivers report more frequent dangerous driving – regardless of age, gender, or annual mileage (exposure).

- Emotional Intelligence is a significant predictor of report dangerous driving.

- CDL drivers tend to report lower Emotional Intelligence, which would explain the higher reporting of dangerous driving.

- This may be an opportunity for CDL training!

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Update

Driver's Emotional Intelligence Scale (DEIS)

"I often find it difficult to see things from **another person's viewpoint**"

→ "I often find it difficult to see things from **another driver's viewpoint.**"

Scale development with n = 1800 US Drivers

Sex		Age		Geography		License Type	
Male	49.2%	18-26	11.3%	Urban	80%	Commercial	10.9%
Female	50.8%	27-80	88.7%	Rural	20%	Non-Commercial	86.7%

Emotionality Subscale

Empathy: "I often find it difficult to see things from another driver's viewpoint"
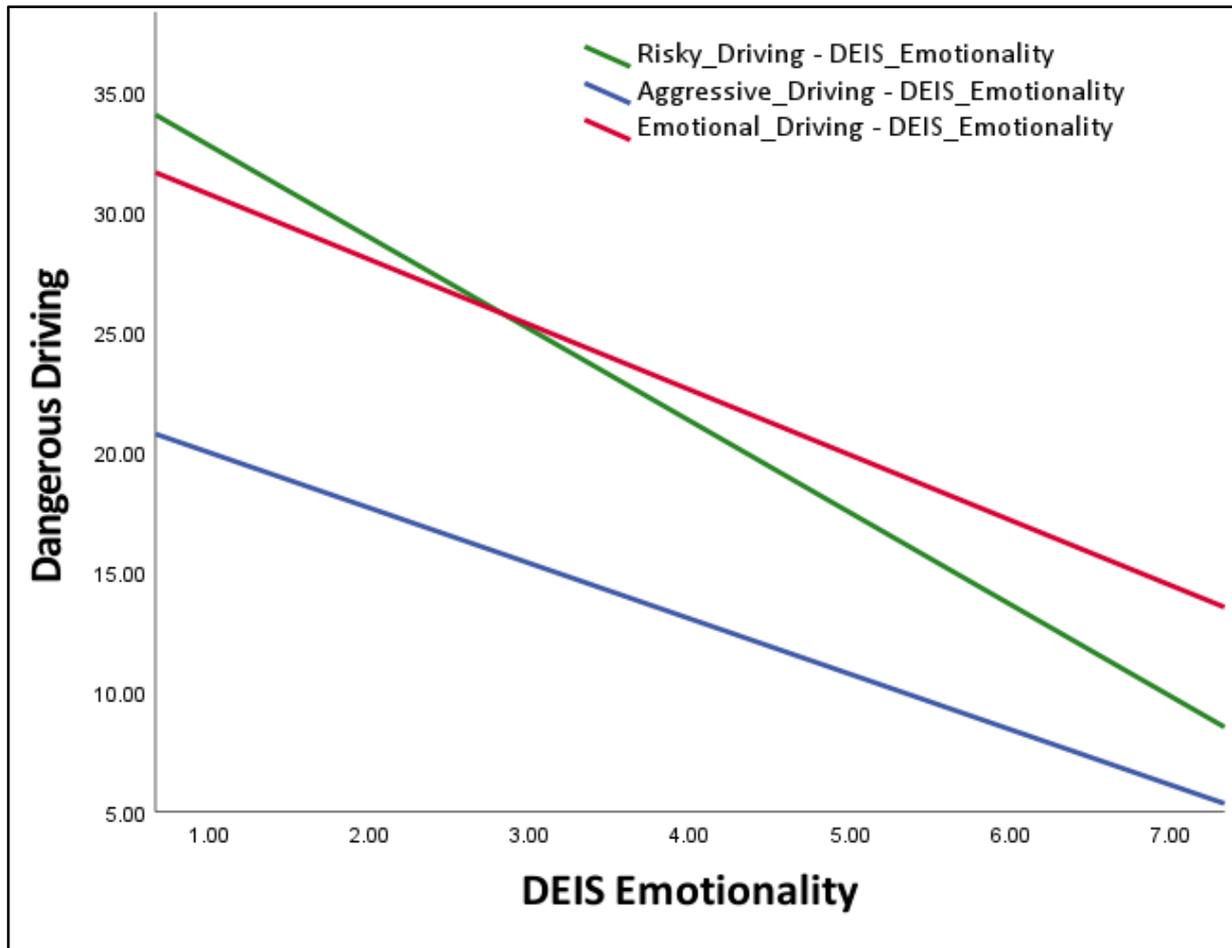
Perception: "Many times, I can't figure out what emotion I'm feeling"

Regulation: "I usually find it difficult to regulate my emotions while driving"

Impulsivity: "I tend to change my mind frequently while driving"

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Update

THE END