



The Effect of Emotion on Driving Performance

Lauren Hunter, Devanie Coombs, Sydney Jackson, Kayla M. Williams, & Carole Scherling, PhD
Department of Psychological Science, Belmont University



Background

Aggressive behavior: Actions elicited by negative, high arousal stimuli. Aggressive actions while driving can include:

- Excessive honking
- Speeding
- Reckless maneuvers
- Accidents

Previous Research on emotions and driving behavior:

- Emotions, particularly anger, create maladaptive driving behaviors (Roidl, Frehse, & Höger, 2014)
- Maladaptive driving behaviors linked to increased incidence of accidents (Deffenbacher, 2001).

The purpose of the current Study: Assess if negatively-valenced music increases aggressive driving behavior and negative facial affect.

Hypotheses

1. Angry mood induction increases negatively-valenced mood and leads to more aggressive driving behaviors.
2. Angry mood induction reveals expression of more negative facial affect versus happy mood induction which shows more positive facial affect.

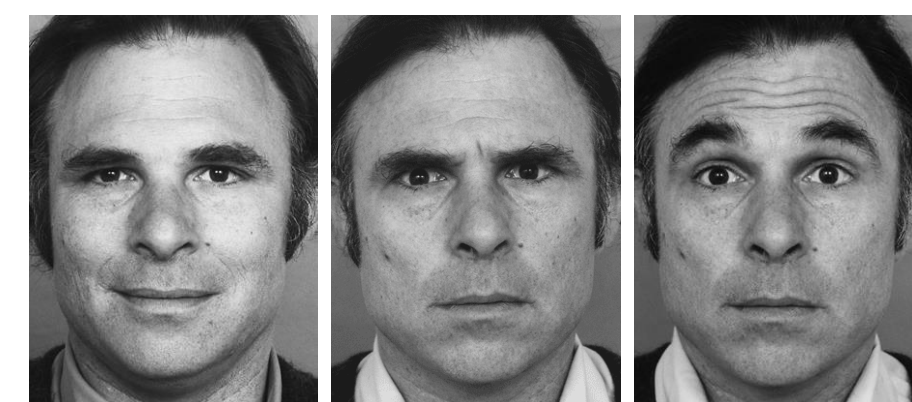
Method

Participants

- 45 Undergraduates
- 18-22 years old ($M = 19.54$, $SD = 1.45$)
- 78% Female and 22% Male
- 88.6% Caucasian, 9.1% African American, 2.3% Other

Measures

- Two mood inductions: Word search and Music.
- Emotional Expressive Behavior System (EEB; Gross and Levenson, 1993).



- City Car Driving Statistics Records – An in-game record keeping program for driving infractions

Experimental Procedures:

1. Group assignment: Angry or Happy condition
2. Practice driving session
3. Mood induction #1 via word search task
4. Mood induction #2 via music and Testing driving session
 - 2 mood-congruent playlists (Spotify): Happy or Angry
 - Researcher created and piloted in student cohort)



Results

Mood induction and driving behaviors

- No significant findings.
- Trend: Angry (2.73) have more accidents than happy (1.40), $F(1,15) = 3.867$, $p=0.5$.

Mood induction and facial affect

- a) Happy condition reveals increase in overall negative affect: $t(28)=-1.99$, $p=0.05$.
 - Happy (1.02) compared to Angry (0.67)
- b) Emotional specificity: Happy reveals increased anger facial affect: $t(28) = -2.37$, $p = 0.025$.
 - Happy (1.37) compared to Angry (0.69)

Discussion

- Angry mood induction correlates with some aggressive driving behaviors, such as accident rates (Roidl, 2014).
- Facial affect during the driving simulation does not match our mood inductions.
 - “Catharsis” in anger induction when listening to mood-congruent music, hence showing less negative facial affect (Dingle & Sharman, 2015).
 - “Frustration” in happy induction when listening to mood-incongruent music, which may lead to expression of negative facial affect.
- Future studies should investigate emotional induction beyond approach emotions (like happy and anger) and investigate the effects of withdrawal emotions (such as sadness).

References

- Deffenbacher, J. L., Lynch, R. S., Oetting, E. R., & Yingling, D. A. (2001). Driving anger: Correlates and a test of state-trait theory. *Personality and Individual Differences*, 31(8), 1321-1331.
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Contact email: lauren.hunter@hunterempire.com