The role of music characteristics on drivers’ anger regulation

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Research Project: Anger Regulation

More than 50% of all road crashes

Aggressive Driving Behaviour → Severe Road Crashes

(e.g. AAA, Foundation for Traffic Safety, 2009; Destatis, 2012)
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High in Trait Anger\(^1\)

Person

Anger

Situation

Aggressive Driving Behaviour

Severe Road Crashes

e.g. cutting/weaving, tailgating\(^2\)

\(^1\)e.g. Deffenbacher et al., 2001
\(^2\)e.g. Wickens et al., 2013; Ellison-Potter, 2001
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Anger → Aggressive Driving Behaviour → Severe Road Crashes
Research Project: Anger Regulation

Anger Regulation\(^1\) → Safe Driving Behaviour → Severe Road Crashes

- Attention
- Appraisal
- Response

\(^1\)Gross, 2007
Research Project: Anger Regulation

Anger Regulation
- Distraction
- Reappraisal
- Suppression

Safe Driving Behaviour

1Gross, 2007
Effect of Music while Driving

Disliked Music\(^1\)

High Energetic Music\(^2\)

\(^1\)Cassidy & McDonald, 2010
\(^2\)Cassidy & McDonald, 2010 – van der Zwaag et al., 2011
Effect of Music while Driving

Preferred Music
Positive to moderate level of arousal
Favourite Song

1Wiesenthal et al., 2003 – 2van der Zwaag et al., 2011
3Cassidy & McDonald, 2010; van der Zwaag, 2011
Research Aim

Aim 1: Down-regulating anger with music

Aim 2: Identifying whether anger regulation is caused by specific music characteristics

Aim 3: Identifying whether anger regulation is due to congruency between music characteristics and drivers emotional state
Anger-Provoking Events and Drivers

83 participants

(67.5% female,
Age 17-39, M=22.9;
75.9km/week & 4,798km/year)
Measure

Anger-Ratings (Angry, Annoyed, Aroused \( \rightarrow \) Anger)

Driving Behaviour

Heart Rate
Music Treatment

A favourite piece of music

- Positive music – slow
- Positive music – fast
- Negative music – fast
- No music
Results

Mean Anger Difference

** p < .01 | * p < .05

Mean Speed Difference

Music-Type
Preliminary Conclusion

- Music down-regulated anger and in some extent speed
- Music type has an important impact on anger regulation and speed
Limitations

Objective measures of music's valence (mode) and music’s tempo (beat per minute)

Driving Simulator Experiment
Future Research

Including

• Individual Differences
• Driving Behaviour
• Heart-Rate Variability

Examine whether anger regulation was due to congruency between music characteristics and drivers emotional state
The bright side of future cars

Music presentation in future in-vehicle entertainment will
Any questions?