Cyclists’ perceived aggression from car drivers on road interactions: Paris and Berlin comparison

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Introduction

• Barriers to cycling:
  ▪ Aggression by other users: “car drivers are aggressive”
    → Road safety!

• Questions…
  ▪ Which behaviors are aggressive?
  ▪ Biased perception or accurate?
  ▪ Cycling modal share – aggression?
  ▪ Definition of aggression?

Aggressive behavior:
“any form of behavior directed toward the goal of harming or injuring another living being who is motivated to avoid such treatment”
(Baron and Richardson, 1994, p. 7)

Objectives

➢ Interactions between cyclists & car drivers → perception of car drivers’ behavior as aggressive
➢ Paris (3%) vs Berlin (13%); 2008
Method I

• 3 pilot studies:
  ▪ Identification of aggressive situations
  ▪ Degree of danger / intention
  ▪ Scenarios development

<table>
<thead>
<tr>
<th>Interaction situations</th>
<th>Danger</th>
<th>Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. To park or to stay on a cycle band</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>2. To drive closely behind a cyclist</td>
<td>+</td>
<td>+</td>
</tr>
<tr>
<td>3. To insult a cyclist</td>
<td>-</td>
<td>+</td>
</tr>
<tr>
<td>4. To open one’s car door while parked</td>
<td>+</td>
<td>-</td>
</tr>
<tr>
<td>5. To get close to a cyclist</td>
<td>+</td>
<td>+</td>
</tr>
</tbody>
</table>

Scenario 5:
“you are on a cycle band, the road is straight and there are cars driving on the road. The driver in the car next to you gets close (about 0.50 meters) to you from your left side almost forcing you to get closer to the edge of the route”.

Source: Road&Travel; http://www.roadandtravel.com; modified.
Method II

Participants
174 cycling students (70% female):
- 90 from Paris
- 84 from Berlin

Online questionnaire
- Scenarios Related Questions:
  - Emotions reactions
  - Perceived danger
  - Perceived intention
  - Perceived aggression
  - Behavioral reactions
- Trait Aggressiveness (Buss & Perry, 1992)
- Bicycle & Other Modes of Transport use
- Cyclists assessment of:
  - Knowledge
  - Legitimacy
- Cyclist Social Identity
- Socio-demographic measures

Source: Universal Uclick
Results I

• Comparison Paris – Berlin

➤ Difference:
  ▪ Cycling frequency: Paris > Berlin \( (F(1, 172)= 24.38, \ p<.001, \ \eta^2=.124) \)
  ▪ Cyclist social identity: Paris > Berlin \( (F(1, 172)=11.70, \ p<.001, \ \eta^2=.064) \)
  ▪ Legitimacy: Paris > Berlin \( (F(1, 172)=6.28, \ p<.001, \ \eta^2=.035) \)

➤ No difference:
  ▪ Perceived aggression
  ▪ Perceived intention
  ▪ Perceived danger
  ▪ Knowledge
Results II

• Perceived aggression

  - Perceived intention (+)
  - Perceived danger (+)
  - Cyclist Social Identity (+)
  - Trait Aggressiveness (+)
  - Knowledge (-)
  - Legitimacy (-)

<table>
<thead>
<tr>
<th>Factor</th>
<th>β</th>
</tr>
</thead>
<tbody>
<tr>
<td>I1 Anger expression</td>
<td>.236*</td>
</tr>
<tr>
<td>I2 Physical harm</td>
<td>.316**</td>
</tr>
<tr>
<td>I3 Psychological Harm</td>
<td>.076</td>
</tr>
<tr>
<td>D1 Risk</td>
<td>-.061</td>
</tr>
<tr>
<td>D2 Gravity</td>
<td>-.106</td>
</tr>
<tr>
<td>D3 Dangerousness</td>
<td>.332*</td>
</tr>
</tbody>
</table>

* p < .05; ** p < .001
Results III

Legitimacy $\beta = 0.034; p = 0.609$

Knowledge $\beta = -0.093; p = 0.168$

Intention $\beta = 0.562; p < 0.001$

PERCEIVED AGRESSION

$\beta = 0.616; p < 0.001$

$\beta = 0.388; p < 0.001$

Source: Pittsburgh Post-Gazette
Conclusion

PERCEIVED AGGRESSION

- Cycling modal share?

Perceived more aggressive…

…Depending on LEGITIMACY & KNOWLEDGE

Actions: public policies, training, educational…

Better relationships: cyclists & car-drivers

Bridging the Gap between Research & Practice!

Source: Bekka Wright, BIKEYFACE, http://bikeyface.com
Thank you for your attention

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