

# The Psychology of Road Rage:

A discussion of psychological explanations  
of road rage and policy implications.

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## Introduction

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The concept of “road rage” is relatively new.<sup>1</sup> It was only in the 1990s that the media began to focus on road rage incidents, leading some commentators to argue that road rage is a media invention and not a real phenomenon. Other researchers dispute this, however, arguing that the term “road rage” is simply a new label for criminal, aggressive or anti-social behaviour on the road that is a widely recognised problem and the cause of many accidents.

Road rage at its most serious can lead to physical attacks, but it is more often manifested in aggressive driving or verbal abuse. Surveys suggest that most drivers have experienced some form of road rage, as victim or as perpetrator. For example, the British Crime Survey based on a random sample in 1998 found that over half of all drivers questioned said they had been the victim of some form of road rage ranging from verbal abuse or gestures to being forced off the road or threatened with violence (Marshall and Thomas, 2000). According to one researcher, aggressive driving and road rage worldwide cause hundreds of thousands of deaths every year and damage worth billions of dollars (McDonald, 2002, p.1). Moreover, the problem is set to increase as more people use vehicles to travel and roads become more congested.

Many countries, including the United States, the United Kingdom, Canada and China, have acknowledged the problem of road rage and some have taken measures to help prevent dangerous driving and road rage incidents. Ten years ago the head of the US National Highway Traffic Safety Administration declared that road rage had become the number one traffic problem (James, 1997a).

This essay will examine psychological explanations of road rage and how they can help in designing measures to reduce the problem and so cut the number of accidents. It concludes that policies that aim to change or affect driver psychology can be useful, but policies to reduce external causes of stress are also needed.

## Is Road Rage Just a Media Invention?

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According to Marshall and Thomas (2000), the term “road rage” is thought to have been first used in the United States in the mid-1990s. Subsequently the media were full of reports of road rage incidents, creating the impression that violence on the roads was a new epidemic. Some commentators such as Fumento (1998)<sup>2</sup> claimed that road rage was a media invention, following the media amplification theory put forward by Cohen (1972).<sup>3</sup> This theory argues that media reporting of “deviant” behaviour exaggerates the prevalence of that behaviour and may even encourage it. This creates a “moral panic” among the public, which demands a response from politicians. They are pressured to take tough measures to control a problem that is in reality much less serious than supposed.

Other researchers, such as Marshall and Thomas (2000), James and Nahl (2000) and Asbridge, Smart and Mann (2006), accept that media reporting has influenced public perceptions but argue that road rage is just a new label for criminal, aggressive or anti-social behaviour on the roads

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<sup>1</sup> Road rage was first listed in an English language dictionary in 1997 (McDonald, 2002).

<sup>2</sup> Fumento, M. (1998). “‘Road rage’ versus reality”, *Atlantic Monthly*, Aug., cited in James and Nahl (2000), pp.22-23.

<sup>3</sup> Cohen, S. (1972). *Folk Devils and Moral Panics: The Creation of the Mods and Rockers*, London, MacGibbon & Kee, discussed by Stanley Cohen (1999) in *Stanley Cohen on Folk Devils and Moral Panics*, Middlesex, Halovine Video.

that has been recognised as a problem for many years. James and Nahl (2000, p.23) note that in England, as early as the 19<sup>th</sup> century, there were attempts to punish “furious driving” of horse-drawn vehicles.

## What is Road Rage?

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The term “road rage” is now commonly used by researchers in traffic psychology, a branch of psychology that focuses on the behaviour of road users. However, there is no widely accepted definition of the concept and definitions range from simply “loss of emotional control while driving” (McDonald, 2002) to a situation where “a driver or passenger attempts to kill, injure, or intimidate a pedestrian or another driver or passenger or to damage their vehicle in a traffic accident” (Asbridge, Smart and Mann, 2006, p.109). It is this type of criminal behaviour that tends to be reported by the media. However, many researchers argue that the definition of road rage should include all forms of aggressive driving or anti-social behaviour on the road. Elliott (1999) lists 15 behaviours associated with road rage, which range from beeping the horn and gesticulating to threatening or physically assaulting another driver.

The broader definition of road rage will be used here because the problem that needs to be tackled is much wider than criminal behaviour. In the 1998 British Crime Survey, 54% of drivers said they had been a victim of some form of road rage but only 3% said they had been threatened with violence and 9% said they had been forced to pull over (Marshall and Thomas, 2000). Asking a representative sample of people about their experience of road rage is more informative than police statistics on crime, because minor incidents are often not reported. However, the British Crime Survey, like other victim surveys, suffers from sample bias (it under-samples people who are hard to contact) and response bias (people may forget, misremember or lie about past events) (Hough, 2002).

## Stress and Anger

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Road rage, like any other form of anger, usually results from stress. Stress is triggered by “stressors” - events that disturb equilibrium and demand an adaptive response (Gerrig and Zimbardo, 2005, p.406). Stress causes physical changes in the body that induce the “fight-or-flight” (or sympathetico-adrenal) response. Our biochemistry changes to increase strength, reduce blood supply to our extremities and increase our aggressive potential (McDonald, 2002). Since “flight” is not an option for someone driving a car, the “fight” response predominates.

A number of researchers have argued that driving, especially in congested conditions, is exceptionally stressful, so that even people who do not normally get angry can lose control. For instance, drivers are subject to a host of environmental stressors such as noise, pollution, crowding, congestion and uncomfortable temperatures. James and Nahl (2002) have listed no fewer than 15 triggers of stress when driving, including immobility (the driver cannot release tension through movement) and lack of control over the situation (other traffic restricts what the driver can do).

James (1997a) analysed thousands of messages posted by drivers on internet discussion groups. He also studied tape recordings made by hundreds of drivers speaking and recording their

thoughts in traffic. These show that people feel enormous amounts of anger and frustration while driving, even on short trips. "In a kind of Jekyll and Hyde effect, perfectly ordinary, friendly, good-hearted people tend to become extremely intolerant and anti-social as soon as they get behind the wheel. Behind the wheel their personality undergoes a rapid transformation, from polite and tolerant to inconsiderate, intolerant and emotionally unintelligent" (James, 1997a).

The samples studied by James are obviously biased towards people who have access to the internet and feel strongly enough to vent their feelings in a discussion group. His studies were also limited to the United States. Thus it is not possible to state conclusively from this evidence that driving is more likely to arouse feelings of anger and frustration than other daily activities, or transform normally mild people into road ragers. However, even if the samples were not representative, they do suggest that angry feelings when driving are common enough to represent a problem.

### Are Some People More Susceptible to Road Rage?

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According to cognitive appraisal theory, whether a person identifies something as stressful depends on their circumstances and situation (Gerrig and Zimbardo, 2005, p.415). So, for example, slow-moving traffic will be much more stressful if someone needs to catch a plane or a train than if there are no particular consequences to being late. People who have had a stressful day are more likely to feel stressed by events when driving home.

In addition, some people are more prone to arousal than others. In the Type A/B classification, for example, Type A personalities are "excessively competitive, aggressive, impatient, time urgent, and hostile" (Gerrig and Zimbardo, 2005, p.428). Dividing people into categories is too simplistic, however, because people do not fit neatly into pre-defined boxes. Another way of measuring personality is to rate people on a scale for different personality traits, such as the Zuckerman-Kuhlman personality test that lists five traits including impulsive sensation-seeking and aggression-hostility. Using this test, Zuckerman (2000) found that risky behaviour including reckless driving was associated with high scores on sensation-seeking and that risk takers also scored highly on aggression-hostility.

How people demonstrate their anger depends on circumstances, gender and culture. Not everyone who feels anger and frustration while driving lashes out at other road users. One concern raised by doctors is that anger while driving can affect the health of drivers even when it does not result in any road rage incident (BBC, 2004). Many studies have identified a relationship between stress and health (see, for example, studies cited in Chapter 4 of Sarafino, 1997). This is because stress, especially chronic stress, depresses the immune system and makes people more likely to become ill.

People have fewer inhibitions to angry behaviour, for example, if they have been drinking. Some researchers also think road rage is a symptom of increasing rage and violence in society as a whole, which reduces inhibitions to showing anger in all types of situation, not only when driving (Joint, 1995; Rose, 1999).<sup>4</sup>

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<sup>4</sup> Joint, M. (1995). *Road Rage*, Washington, D.C., AAA Foundation for Traffic Safety; Rose, R. (1999). "From rudeness to road rage, the antecedents and consequences of consumer aggression", *Advances in Consumer Research*, Vol.26, pp.12-17, cited in Asbridge, Smart and Mann (2006).

Studies of serious road rage incidents show that these road ragers are more likely to be young urban males who are reckless and aggressive drivers, often with alcohol or psychiatric problems (Asbridge, Smart and Mann, 2006). It should be noted that these studies are usually based on interviews with or observation of individuals who, for example, have been prosecuted for aggressive driving or assault.<sup>5</sup> Although individuals can be studied in depth, the sample is very small and biased (just those ending up in court) so it is difficult to make generalisations about more common forms of road rage.

There is, however, some evidence that road rage may be linked to aggression in other contexts. A 1968 study, which compared 96 drivers involved in fatal accidents with a matched control group, found that the fatal-accident drivers showed “significantly more psychopathology and social stress” than the control group. In 20% of the fatal accidents the drivers had been involved in some form of aggressive behaviour in the six hours prior to their deaths (Selzer, Rogers and Kern, 1968).

In a different type of study Lynch took a group of 153 students at Colorado State University and tested them for “driving anger”. She then asked the students to keep a record of road incidents and found that “angry drivers” had more accidents and confrontations with other drivers (Waters, 1999). Investigations of this kind can be flawed by “demand characteristics”, however, because participants are aware of the aims of the research and may give answers that they think the researchers are looking for (or try to spoil the research).

Other research suggests that simply being in an angry mood does not cause road rage. There need to be triggers such as bad driving or traffic congestion.<sup>6</sup> Deffenbacher studied students who were self-identified “high-anger” drivers and found that although these drivers were more likely to be angry before they got into the car they were no more likely than low-anger drivers to be angry driving along unimpeded country roads in a computer simulation. According to Deffenbacher: “Anger is not a chronic experience for high-anger drivers, but something prompted by different triggers or events on the road” (Dittman, 2005).

Although Deffenbacher’s research may have been flawed by demand characteristics, his results seem plausible. For example, a Canadian study found a link between road rage incidents and increasing congestion on the roads in urban areas (Smart, Mann and Goldbloom, 2005).<sup>7</sup>

## Gender Stereotypes

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Driving is often viewed as a male activity that creates a sense of power and control over a big machine, involving adventure, risk taking and speeding (James, 1997b). This is supported by Zuckerman (2000) who found that men were higher risk-takers than women. According to James (1997b), studies have shown that male drivers are more competitive while women tend to be more careful and take fewer chances. They are also more considerate to pedestrians, passengers and

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<sup>5</sup> Several studies of this type are mentioned in Asbridge, Smart and Mann (2006).

<sup>6</sup> In Europe, taking another’s parking space is the single most important event provoking anger in drivers (Parker, D., Lajunen, T. and Summala, H. (2002). “Anger and aggression among drivers in three European countries”, *Accident Analysis and Prevention*, Vol.34, pp.229-235, cited in Asbridge, Smart and Mann, 2006).

<sup>7</sup> Smart, R., Mann, R. and Goldbloom, D. (2005). “Road rage: Are outpatients driving angry?”, *Psychiatric Times*, Vol.22, pp. 25-33, cited in Asbridge, Smart and Mann (2006).

other motorists. Men are more likely to be rude and lack self-control. Women are more likely to respect authority and traffic regulations.

A study by Taylor et al. (2000) suggests that women respond differently to stress from men.<sup>8</sup> Instead of a “fight-or-flight” response, women experience a “tend-and-befriend response”, protecting their offspring and befriending others for support. This supports the view that women are capable of being better drivers than men as they care more about the welfare of others. Insurance companies also charge lower premiums to women drivers because, statistically, they have fewer accidents, though this partly reflects the fact that they drive less.

However, according to James (1997b), recent studies show that women are becoming more aggressive in their driving. Timo Lajunen, a traffic psychologist, also says studies show little or no difference between men and women in their emotional reaction to being treated badly in traffic. One reason is that in the car “women can behave badly as well... in a car, it’s the power of the car which matters, not the muscles” (BBC, 2004).

## Intermittent Explosive Disorder

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Some psychologists have identified road rage as a new psychological disorder, labelled Intermittent Explosive Disorder (I.E.D) (Psychology Today, 2005). I.E.D is characterised by explosive and unpremeditated outbursts of anger, for example, throwing or breaking things, or inflicting harm on others, that are disproportional to the provocation. The Diagnostic and Statistical Manual of Mental Disorders - Fourth Edition (DSM-IV), published by the American Psychiatric Association, categorises I.E.D. as an impulse control disorder along with pyromania, pathological gambling and other impulsive personality disorders. People suffering from impulse control disorders find it difficult or even impossible to resist impulses to do things, even when these can harm themselves or others.

I.E.D is associated with loss of cells and abnormalities in the left hemisphere of the brain, and is linked to an inadequate production or functioning of serotonin, a mood-regulating chemical in the brain. It is generally treated with anti-depressants or anti-anxiety drugs, sometimes combined with cognitive-behavioural therapy that teaches people to identify the triggers to rage attacks.

Kessler and colleagues (2006), who analysed data from a nationally representative survey of 9,282 American adults, concluded that I.E.D. may affect up to 7.3% of adults or 16m people in the United States in their lifetimes. However, there are problems in using random sample surveys of large numbers of people for psychological analysis. Though psychological questions can be asked, for example, about angry outbursts, there is no way of checking that the answers are reliable or consistent. It is difficult to operationalise the concept of anger because people may define anger in different ways.

Although I.E.D. has successfully been used as a legal defence in a road rage case in the United States, it is not widely accepted as an explanation or excuse for road rage. One reason for scepticism is that I.E.D. is diagnosed only when other explanations, such as another personality disorder or mental illness, are not applicable (Mayo Clinic, 2006), so there is doubt as to whether it is really a specific disorder. More broadly, at what point does one say that certain behaviour is a mental disorder and not just an unreasonable reaction to stimuli?

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<sup>8</sup> Taylor, S. et al. (2000). “Biobehavioral responses to stress in females: Tend-and-befriend, not fight-or-flight”, *Psychological Review*, Vol.107, pp.411-429, cited in Gerrig and Zimbardo (2005), p.408.

## Driving Pathology

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People differ in their need for excitement, and these differences in levels of desired stimulation or arousal involve a personality trait known as sensation seeking. Zuckerman (1994) has defined sensation seeking as “the seeking of varied, novel, complex, and intense sensations and experiences and the willingness to take physical, social, legal, and financial risks for the sake of such experience”.<sup>9</sup> Sensation seeking now seems to be recognised as a trait that could give rise to aggressive or risky driving. For example, in Australia learner drivers are encouraged to take a Zuckerman test and study how to reduce risk when driving (Roads and Traffic Authority, New South Wales, 2006).

Psychologists have also identified a process called level of adaptation (James, 1997b). The basic concept is that the brain records certain sensations we feel throughout our various activities. When driving, for example, the brain records sensations felt during acceleration or driving at a certain speed. At first, one may feel an adrenaline “rush” from accelerating a certain amount. However, eventually the brain will think of this specific acceleration as a norm and it will no longer generate a “rush”. This means that the driver has to increase the acceleration for the brain to create the sensation that he or she is searching for.

Sensation seeking drivers will be constantly searching for this rush and so will be tempted to keep pushing the limits. Drivers who can no longer experience a rush when driving fast may alter their methods of driving so that they switch lanes back and forth and purposely try to drive dangerously. They have adapted to a level of risk that they perceive as a norm, and are dependent on it when driving. These drivers will become very irritated or angry when in slow traffic, because the speed will be well below their level of adaptation. In a way, they have become addicted to risky driving.

Another feature of road rage incidents involves the actor-observer attributional bias identified by Jones and Nisbett (1972).<sup>10</sup> Drivers tend to rationalise their own bad behaviour as dictated by circumstances (being late for an appointment, for example) or as a justified response to the supposed bad behaviour of others (I was provoked). They prefer situational explanations for their own actions but make dispositional attributions (reckless, inconsiderate) about the actions of others (Hansen, Kimble and Biers (2001). James (1997b) describes how, in typical cases of road rage, the perpetrator is seeking revenge on a driver who has apparently done wrong. He or she may tailgate the driver, for example, or simply yell verbal abuse. The situation escalates when the wrongdoer retaliates and a rage cycle begins. This is how an accident can occur as a result of something as trivial as a person failing to thank another driver for being courteous.

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<sup>9</sup> Zuckerman, M. (1994). *Behavioral Expressions and Biosocial Bases of Sensation Seeking*, Cambridge, Cambridge University Press, p.27, cited in Weisskirch (2004).

<sup>10</sup> Jones, E. and Nisbett, R. (1972). “The actor and the observer: Divergent perceptions of the causes of behavior”, in E. Jones et al. (Eds.). *Perceiving the Causes of Behavior*, Morristown, NJ, General Learning Press, pp.79-94, cited in Hansen, Kimble and Biers (2001).



## Solutions to Road Rage

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Most research on ways to tackle road rage has taken a cognitive perspective, concentrating on teaching people how to control their angry feelings and reduce their arousal in stressful circumstances. This can be done through individual or group therapy.

Stosny found that “compassion training” for domestic abusers had a dramatic effect in reducing road rage (Marano, 2003). Before the training programme 312 of the 400 offenders had convictions for aggressive driving. The year after compassion training, even though road rage was not mentioned, there were only 7 driving convictions among the 400. The results are interesting, but there was no control group for this study, and we do not know if the effects of “compassion training” wear off over time.

Deffenbacher studied psychology students to observe if therapy sessions helped to calm drivers who were prone to become aggressive or angry. He assigned them to relaxation therapy alone or cognitive and relaxation therapy together, which are both common treatments for anxiety, stress and anger. Both types of therapy significantly reduced the frequency and intensity of anger, according to Deffenbacher. However, he adds that “people must want to change, or none of it will work” (Davis, 2000).

There are several problems with this study. First, it is likely to have been affected by demand characteristics since Deffenbacher was using psychology students with some insight into the study. He also had to get his students to admit to having an anger problem while driving. Many aggressive drivers or road ragers do not see themselves as aggressive and getting these people voluntarily to attend therapy sessions would be very difficult (Waters, 1999).

Asbridge, Smart and Mann (2006) have suggested that new drivers could be screened to identify potential road rage cases, for example, using the criteria for intermittent explosive disorder. People identified as potential road ragers would then have to take additional driver training programmes to learn non-aggressive driving practices or anger management. Another example would be making it compulsory to take a Zuckerman sensation seeking test and requiring those who score highly to have special driver training. But both solutions have ethical flaws because they single out people who may never be involved in a road rage incident.

An increasing number of countries in Europe are making it compulsory for all new drivers to attend classes that warn of the consequences of aggressive and inconsiderate driving. Since this is quite recent, research on its effectiveness is lacking. However, it is unlikely that sensation seekers will be influenced by classes, any more than they are by health warnings for tobacco or alcohol (Zuckerman, 2000).

Traffic psychologists have also suggested technical ways of reducing road rage, for instance, by designing cars that stop drivers from constantly flashing their headlights or sounding the horn. Some cars have even been designed to include a sensor located in the front grill that detects the distance between the car and the car in front and modifies speed accordingly (Asbridge, Smart and Mann, 2006).

## Conclusion

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Surveys suggest that the majority of drivers have experienced at least one incident of road rage, often minor but occasionally serious. Research on road rage has not identified any single cause but there seem to be two main sets of factors. One set relates to personality. Sensation-seeking personalities, often young men, are more prone to risky and aggressive driving behaviour. The other set relates to environmental and other “stressors” that make driving a highly stressful activity.

Addressing people’s ability to deal with stress and anger, and discouraging risky driving behaviour, is obviously important but very hard to put into practice. Cognitive therapy can work for individuals and small groups, but it cannot be used for all drivers who might be susceptible to road rage. Screening new drivers for sensation-seeking characteristics has ethical flaws, while general driver education may not have much influence on the target group of high risk takers. However, more research is needed to see how effective screening and driver education are in reducing poor driving and accidents.

Tackling driving “stressors” also presents problems since there is only a limited amount that can be done. For instance, traffic congestion is bound to get worse almost everywhere as more and more people have cars and commute long distances to work.

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