STARS CAMP
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Why do people speed?

Stephen Stradling

Transport Research Institute, Edinburgh Napier University

s.stradling@napier.ac.uk

'I take my dad out for spins in my car, he's into cars so he doesn't really mind, he trusts me driving fast, I drive sensibly at the same time.'
FAST AND SENSIBLY?
'Well fast sometimes and then sensibly other times.' (M 21-25)

1. Driving: what is it?
2. Why not speed?
3. 3 myths about speeding
    a. Everybody speeds
    b. Everybody wants to speed
    c. Nobody likes speed cameras
4. Young, inexperienced drivers
5. Powered two wheeler riders
6. WHY DRIVERS SPEED
7. What can be done about it?
    a. Change the road
    b. Change the car
    c. Change the driver

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Driving (and **riding** a powered two-wheeler):

is a **skill-based, socially regulated, expressive** activity involving

balancing capability and task difficulty to avoid loss of control,

along with real time negotiation with co-present transient others with whom the driver is presently sharing the public highway to avoid intersecting trajectories,

while maintaining or enhancing the driver's mood and self-image.

Professor Ray Fuller
Task-difficulty homeostasis

The **difficulty** of the driving task arises out of the interaction between the **demands of the task** and the **driver's available capability** for that task.
Capability > Demand: Good! Demand > Capability: Bad!

Increases in task difficulty, as demand approaches capability, may be experienced as increases in **feelings of risk**. This is hardly surprising, given the likely punishing consequences of loss of control of the task. However this enables us to refer to the **upper limit of task difficulty**, which a driver is prepared to accept, as the **driver's risk threshold**.

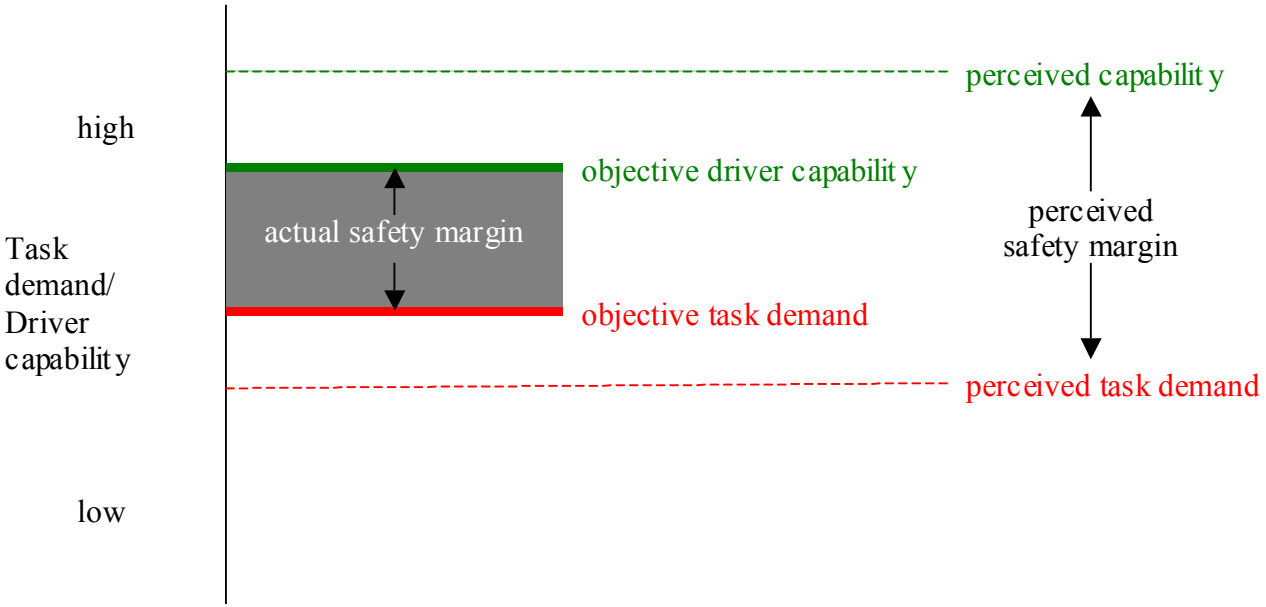
Speed directly affects task demand and thus the difficulty of the driving task. For any given road and traffic scenario, the faster one travels the less the available time to take information in, process it, make decisions, execute those decisions and make any necessary error corrections. (COAST)

Drivers generally **choose a speed** such that the difficulty of the task falls within the range they are prepared to accept and **does not exceed their risk threshold**. This process is known as task-difficulty homeostasis. Drivers typically **vary** in the their risk thresholds.

Driver types

- Low risk threshold
  - older, experienced, both sexes
  - comply with speed limits
  - reduce speed if realise travelling faster than thought in 30 mph zone
  - unlikely to change driving behaviour as result of momentary influences (including if in hurry)
- High risk threshold
  - young, inexperienced, immature, male
  - higher speeds
  - more extreme speed-limit violations
  - other dangerous driving behaviour
  - positive attitudes to high risk behaviour
  - thrill-seeking and expressive use of car
  - peer influence and culture of recreational use of driving
  - more convictions for violations
  - **greater collision involvement**
  - poorly calibrated

The problem of poor calibration



Capability > task demand: safety margin +ve = vehicle operator in control
Task demand > capability: safety margin –ve! = loss of control, Crash!

Speeder types

- Opportunistic speeders
  - adjust speed to conditions rather than limit
  - exceed limit if feel it is safe (low perceived task difficulty)
  - exploit opportunities to get ahead
  - high speed not pursued for its own sake
  - drive to limit of their Risk Threshold as opportunity arises
- Reactive speeders
  - not persistently concerned to make good progress
  - strongly influenced by emotional state: drive faster if angry or annoyed
  - drive faster if in hurry
  - avoid dangerous overtaking and unsafe high speed

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Damage = Speed^2

Speeding and crashing

Worldwide over one million people lose their lives every year from vehicle impact, almost 3000 every day, and many millions more are injured or disabled (World Health Organization 2004).

Speed affects both the **likelihood** and **severity** of a crash (Elvik et al. 2004) and collision damage is proportional to the square of the speed at impact ($Ek=(1/2)\ mv^2$; Aarts and van Shagen 2006).

At impact a large amount of kinetic energy must be absorbed by hard metal, soft flesh and brittle bone. Secondary safety protects occupants (but ‘exports death out of the car’). Primary safety seeks to prevent collisions by ‘adjusting’ the vehicle operator.

Damage = Speed^2

Slowing down will help save the planet:

Anable et al. (2006) calculate that

- a properly enforced 70 mph speed limit would cut carbon emissions from road transport by nearly one million tonnes of carbon (MtC) per annum, and that

- a 60 mph UK top speed limit would nearly double this reduction, reducing emissions by an average 1.88 MtC per year,

- giving 15% or 29% of the total savings expected from the transport sector by 2010, as required in the 2006 Climate Change Programme Review (DEFRA 2006).

Speeders crash more

Twice as many detected speeders have been recently collision-involved

Detected speeders: 'How many times have you ever been stopped by the police for speeding or been flashed by a speed camera in the past 3 years?'

Collision-involved: 'How many road traffic accidents (RTAs) have you been involved in as a driver in the past 3 years?' [M 18%: F 14%]

RTAs last 3 years		None	Some
Male	Non-speeders	87	13%
	Speeders	78	22%
Female	Non-speeders	89	11%
	Speeders	78	22%

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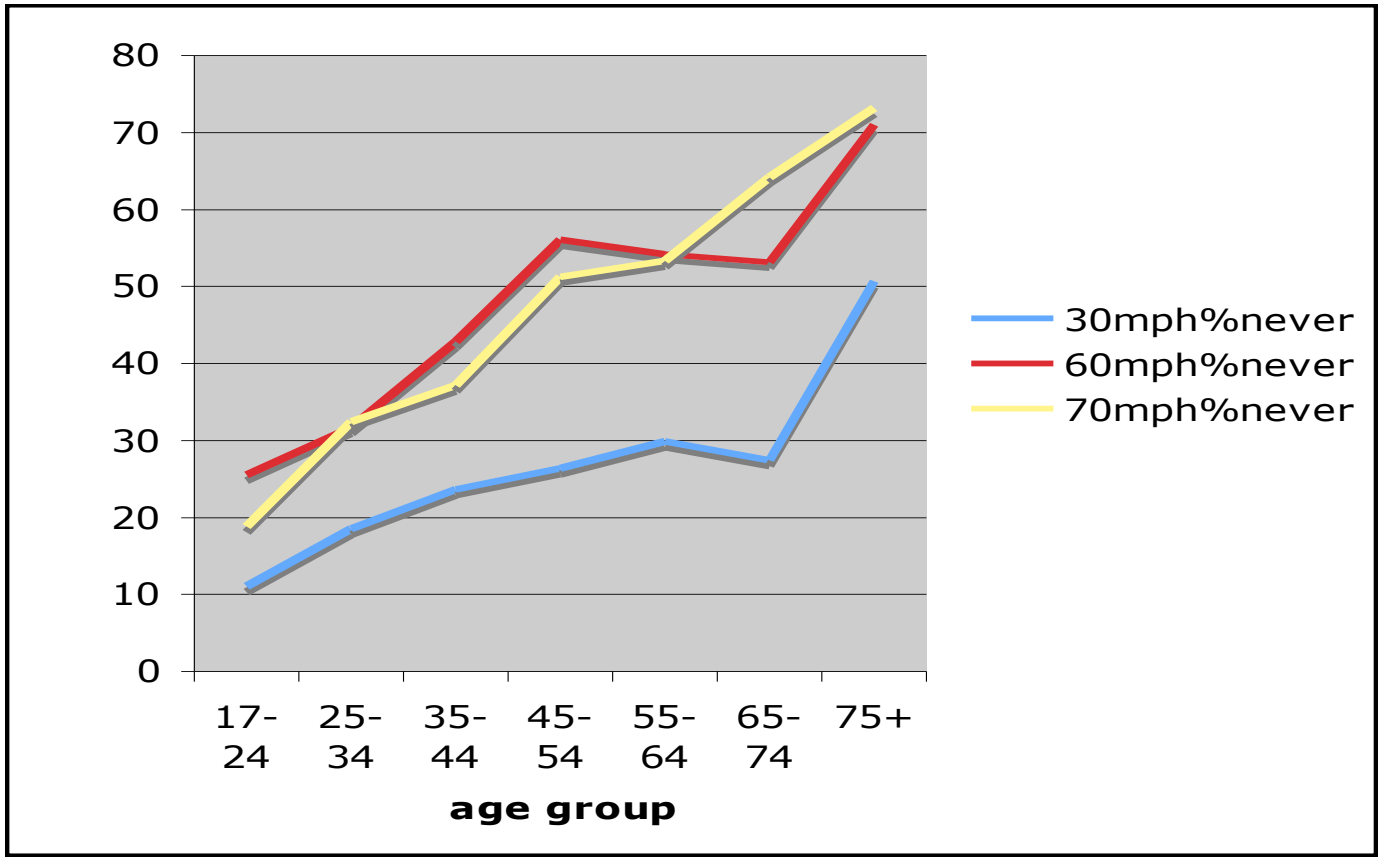
Percent of cars exceeding speed limit and exceeding speed limit by 5 mph at 30 mph sites in free flowing traffic, Great Britain 1998-2008

30 mph sites	1998	2000	2002	2004	2006	2008	2010
% exceeding limit	69	66	59	53	48	49	?
% exceeding limit by 5 mph		32	25	22	18	18	?

Exceeding the speed limit: extent of

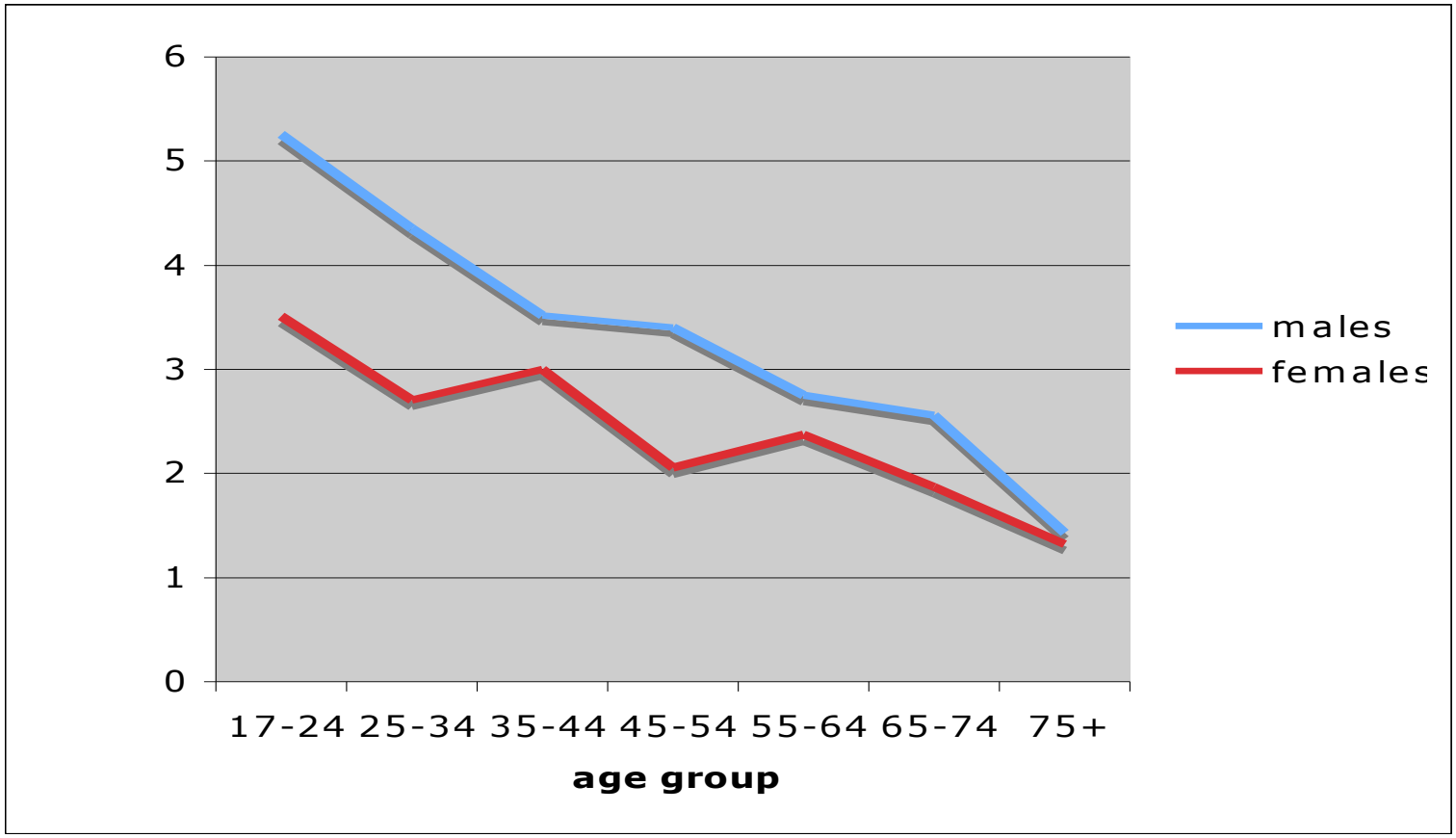
- Drivers indicated **how often** they had in the previous 3 months:
- ‘Driven in a built up area (where there is a 30 mph limit)’ at
  - 35 mph
  - 40 mph
  - 50 mph
- ‘Driven on a single carriageway A road (where there is a 60 mph limit)’ at
  - 70 mph
  - 80 mph
- ‘Driven on a dual carriageway (where there is a 70 mph limit)’ at
  - 80 mph
  - 90 mph.
- Responses were made on 6-point scales from 1 ‘Most days’ to 6 ‘Never’.
- 784 respondents had driven on all 3 road types within the previous 3 months and their responses were analysed.

Percentage of each age group of drivers reporting ‘Never’ speeding in 30, 60 and 70 mph limits



Exceeding the speed limit: extent of

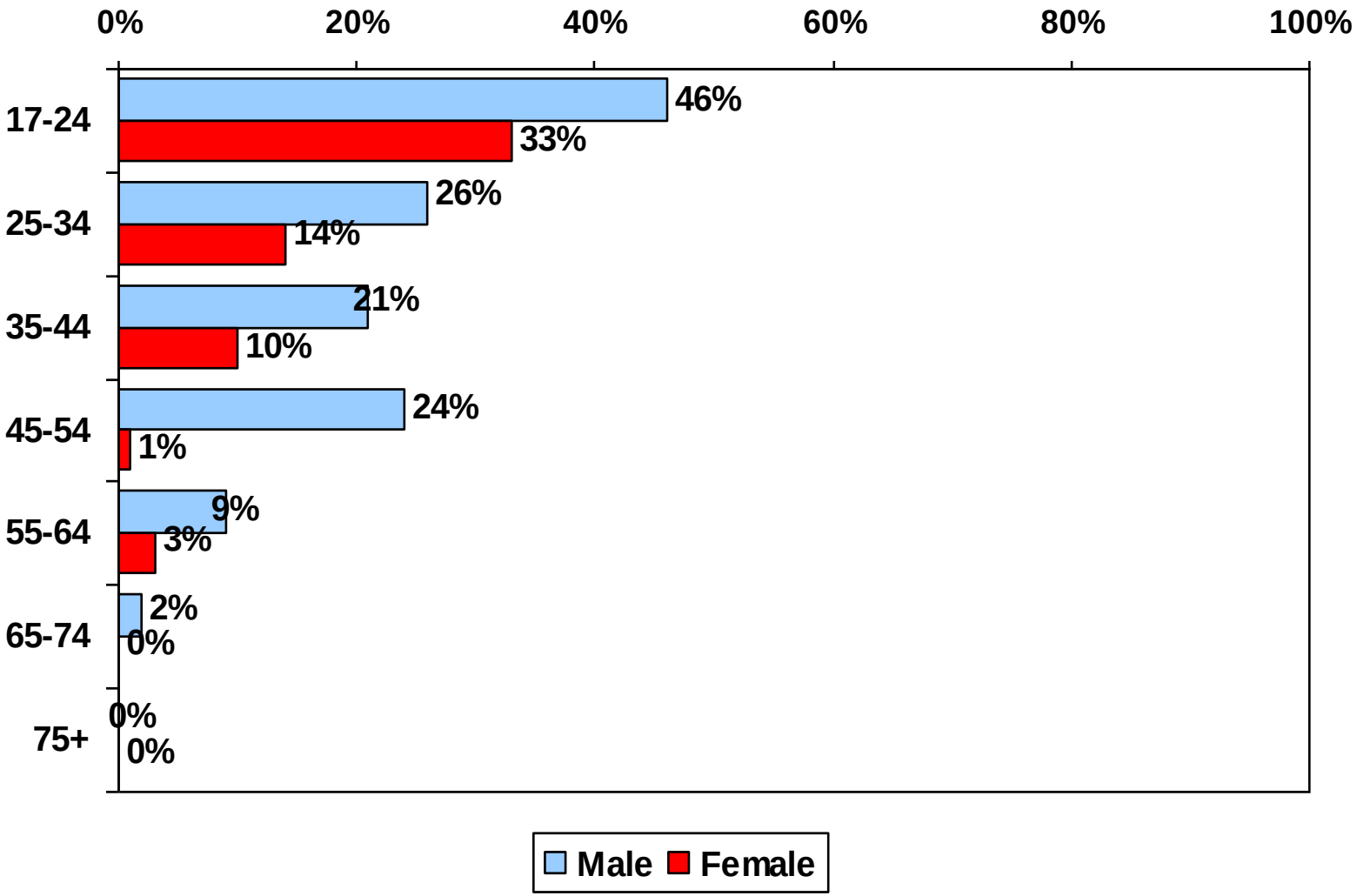
Average number of speeding opportunities taken at least once in previous 3 months (max=7)



3 Speeder Clusters in Scotland

Within the last three months, how often have you … [more often than rarely]	C1	C2	C3
	Compliants	Exceeders	Excessives
N = 784	430	254	100
% of sample	55%	32%	13%
Driven at 35 in a 30 limit	8	100	97
Driven at 40 in a 30 limit	1	28	89
Driven at 50 or more in a 30 limit	0	2	29
Driven at 70 on a single-carriageway A road	10	22	83
Driven at 80 or more on single-carriageway A road	1	2	33
Driven at 80 on a dual carriageway	10	22	71
Driven at 90 or more on a dual carriageway	1	2	23

Membership of Excessive Speeding Cluster C3: Male and Female car drivers by Age group



Cluster differences for 784 Scottish drivers

Row %	C1 Compliants	C2 Exceeders	C3 Excessives
% of sample**	55%	32%	13%
Residential location*			
Urban	50	36	14
Rural	60	29	12
Gender*			
Male	52	32	17
Female	58	33	9
Age group*			
17-24	39	31	29
25-34	50	30	20
35-44	50	35	15
45-54	50	38	12
55-64	63	31	6
65-74	73	26	1
75+	70	30	nil
Near miss on a rural last 12 months *	18	21	32
Accident on a rural last 12 months (ns)	3	1	4

Exceeding the speed limit: motives for

'How likely are you to break the speed limit in the following circumstances?'

% Very + Quite likely

N=567	F1	F2
On an empty road, in the daytime	39%	
On an empty road, at night	40%	
When overtaking	63%	
Just to keep up with traffic	45%	
When I am feeling stressed		14%
When I am feeling angry		15%
In order to stay awake		2%
When trying to see what my car can do		7%
When someone is driving close behind me		15%

- Factor 1 **external pull:** fits the profile of the **opportunistic speeder: 55%**
- Factor 2 **internal push:** fits the profile of the **reactive speeder: 9%**

Percent of each speeder group who reported ‘to blame’ RTAs

Overall: 10 %

	Compliants	Exceeders	Excessives	
Neither	6	10		7_a%
Opportunistic speeders only	13	9	13	9_a%
Opportunistic and reactive		16	26	18_b%
	8_a%	10_a%	19_b%	N=644

[Strongly Agree + Agree]	All	‘Worst Case’ Group
‘I really enjoy driving fast’	19%	39%
‘I think it will always be difficult for me to keep to the speed limit’	20%	78%
‘When driving I like to feel at risk’	3%	16%

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Problem Speeding scale

	SA	A
I feel more comfortable driving fast than slow	<1	11
I think that speeding will always be a problem for me	1	7
My passengers sometimes ask me to drive more slowly	1	9
I enjoy driving fast but sometimes I do drive a bit too fast	1	24
I really enjoy driving fast	2	17
I speed whenever I think it is safe to do so	2	29
I like to put my foot down on open roads & motorways	3	30

Strongly Agree (SA) with at least 1 Problem Speeding item 11%

Female	7%
Male	15%

17-24	17%
75+	3%

1.0 litre engine	6%
2.0+ litre engine	17%

Focus Group Quotes

Fuller, Bates, Gormley, Hannigan, Stradling, Broughton, Kinnear and O'Dolan (2007)

- *I think your body knows you're outside your comfort zone. It just registers something and you say 'back again' instantly, to whatever speed you're comfortable.*

- *I went about 120* (mph) *then I started feeling that I wasn't in control, a sort of feeling 'anything could happen here' that sort of scared me.*

- *Well, I could control the safety margins with the speed, I feel quite happy doing 80-85, but if something, if the weather .., if conditions got worse, if the rain gets heavier, then I would slow down, I would kinda back off.* (PTW)

- *And again it was on the motorway, nobody else about, did it* [high speed] *for a couple of minutes, stopped whenever there was anything looking like it was getting too close. Just a bit too much sensory input for me, and a little bit too quick, even though feels like an empty road, it doesn't feel comfy.* (PTW)

- *…middle of the night and no one else is out, just me, big empty motorway, 70mph just definitely feels too slow.*

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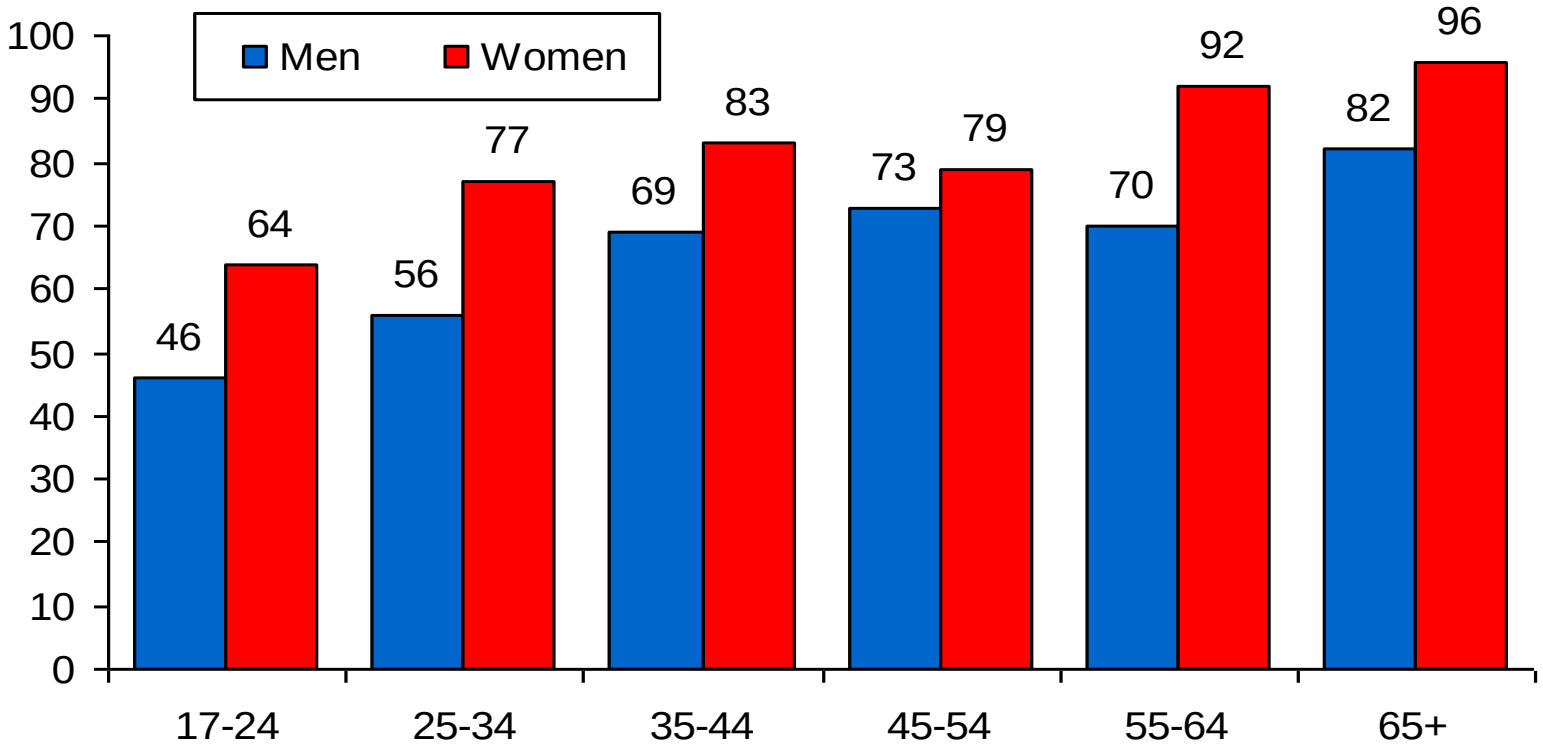
Who supports speed cameras?

Percent in favour: F 81% M 67%



'Overall, I am in favour of speed cameras': Strongly Agree; Agree, NAD, Disagree, Strongly Disagree

Percent against: F 4% M 18%

Self-reported behaviour at 30 mph speed camera in built-up area

	Before	At	After	%	Total %
Conformer	30	30	30	47%	
Nervous conformer	28	25	28	16%	63%
Complier	35	30	30	11%	11%
Full manipulator	40	30	40	14%	
Partial manipulator	40	30	35	5%	
Released manipulator	30	30	40	7%	26%
Defier				0.9%	0.9%

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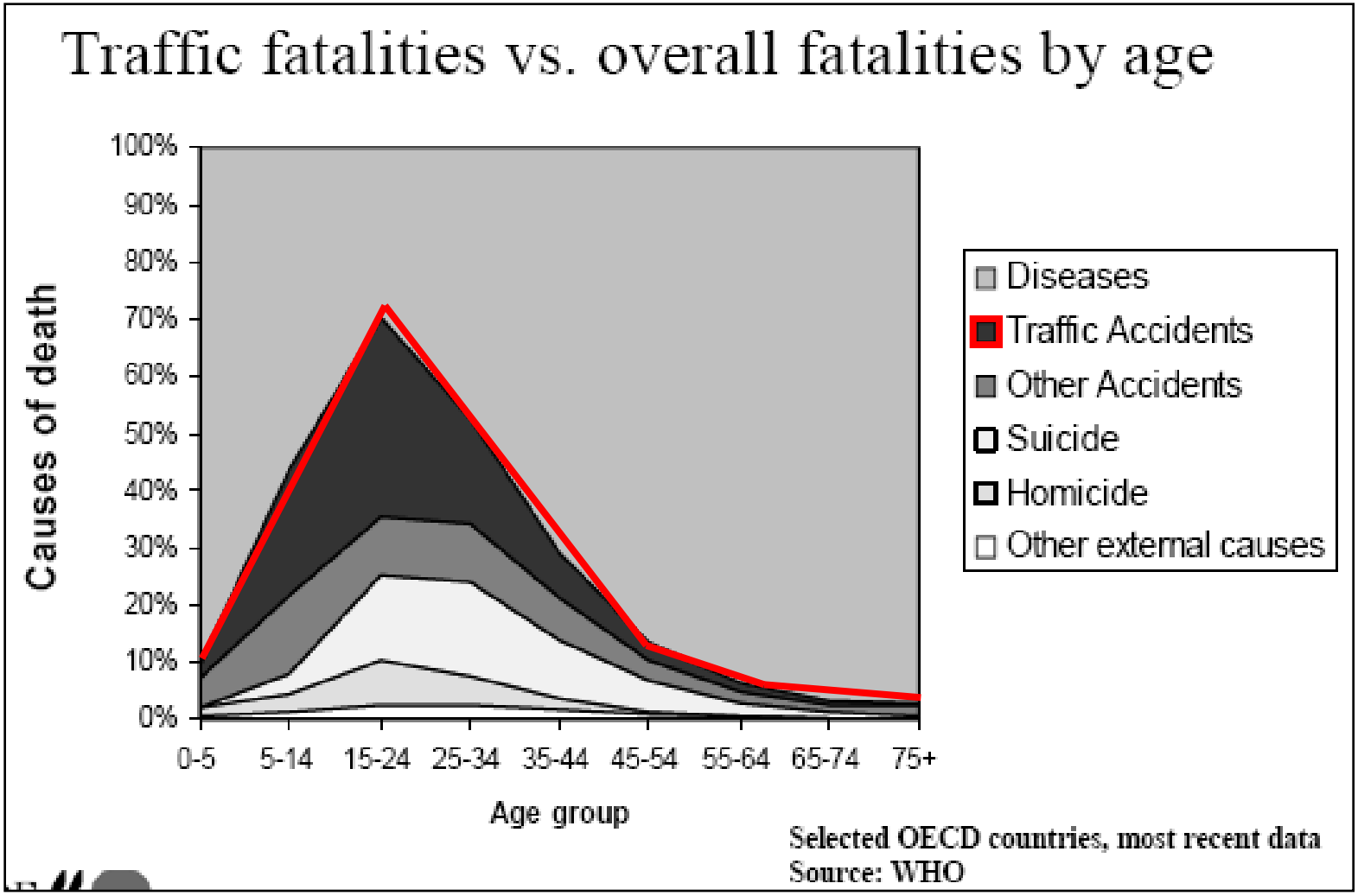
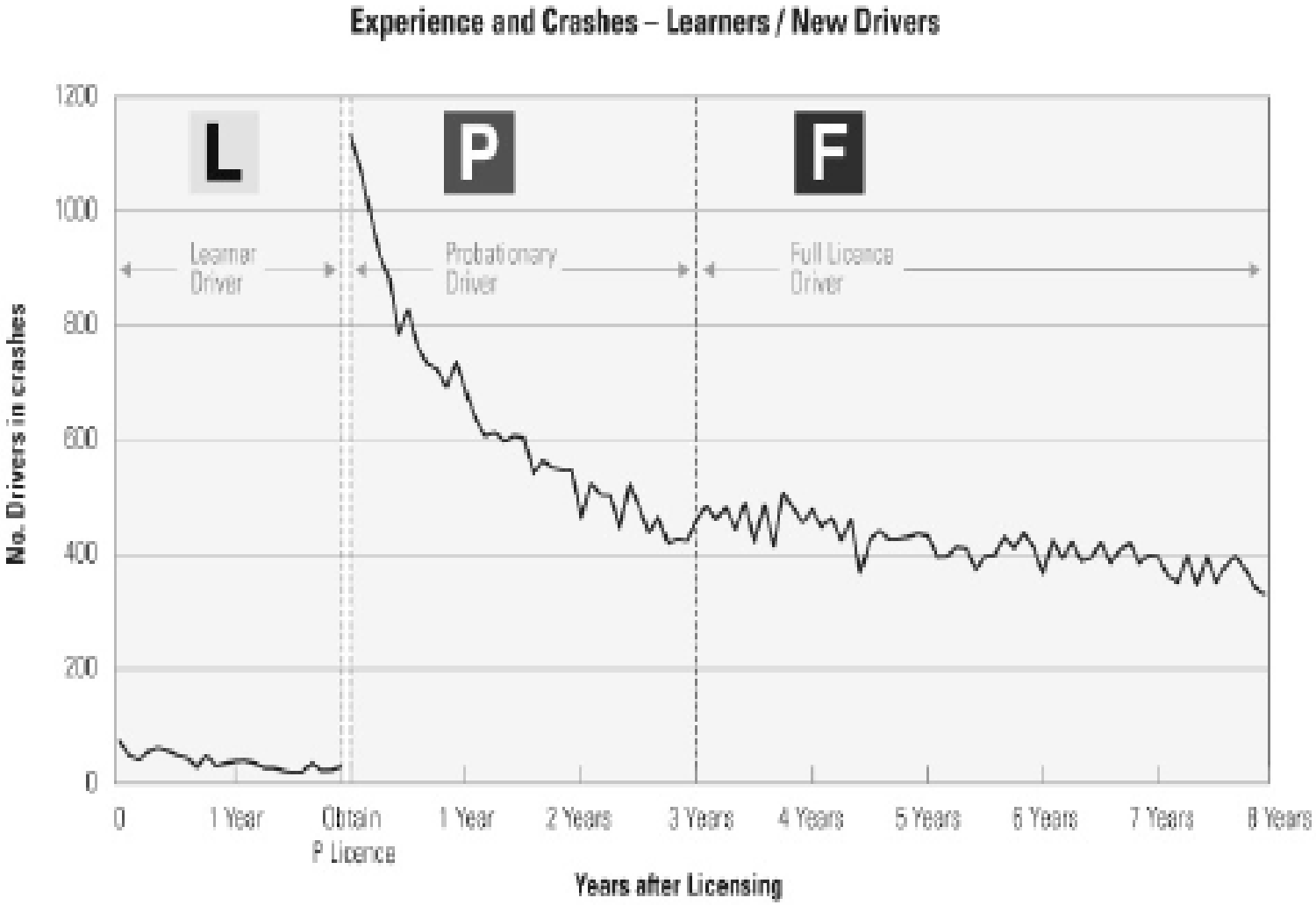


White (2005). Presentation to the FIA Foundation International Forum. Budapest.

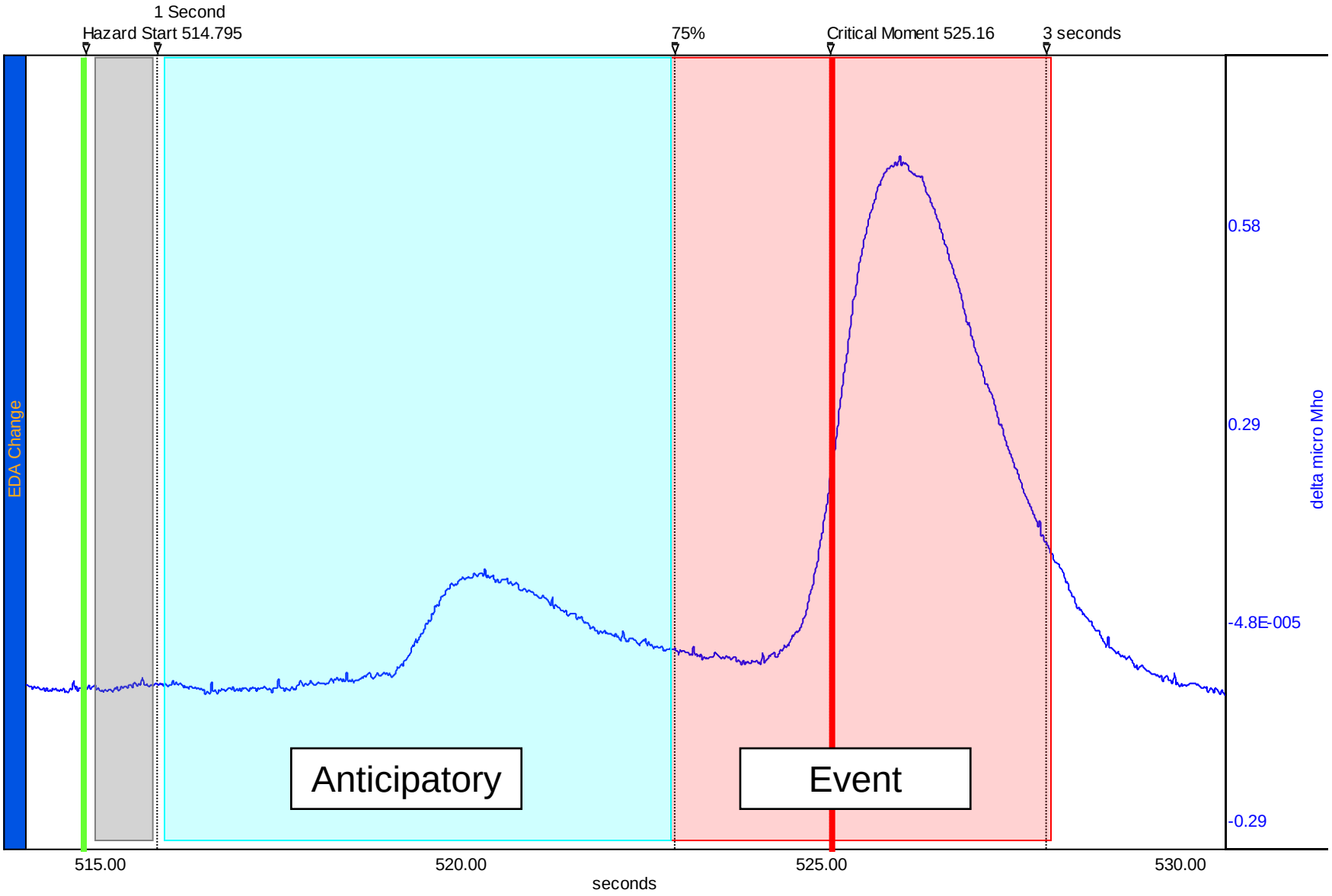
OECD: Organisation for Economic Co-operation and Development. *30 member countries:*

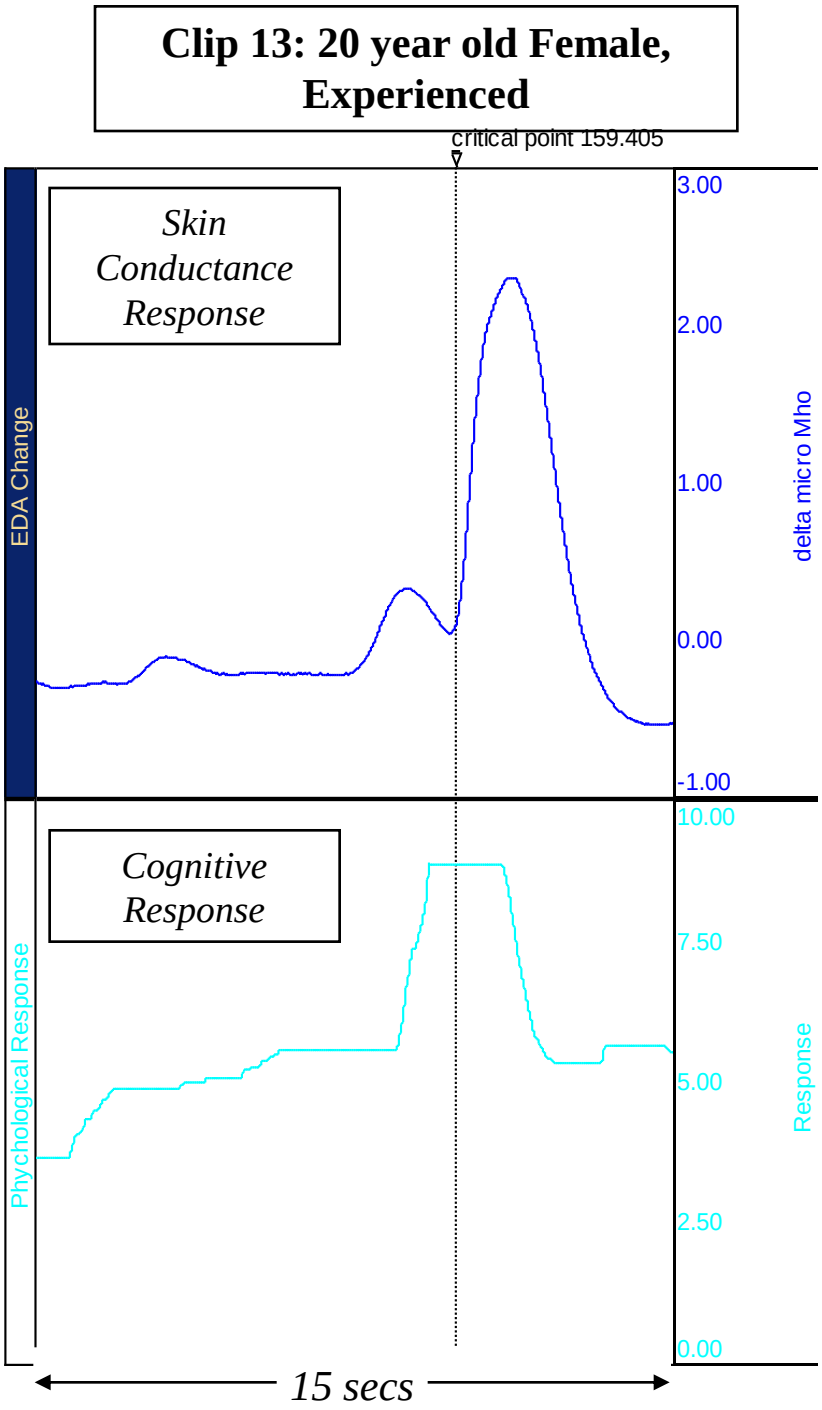
Australia, *Austria*, *Belgium*, *Canada*, *Czech Republic*, *Denmark*, *Finland*, *France*, *Germany*, *Greece*, *Hungary*, *Iceland*, *Ireland*, *Italy*, *Japan*, *Korea*, *Luxembourg*, *Mexico*, *Netherlands*, *New Zealand*, *Norway*, *Poland*, *Portugal*, *Slovak Republic*, *Spain*, *Sweden*, *Switzerland*, *Turkey*, *United Kingdom*, *United States*

Targeting Young Driver Crash Risks



Source: VicRoads


1 Second
Hazard Start 514.795
75%
Critical Moment 525.16
3 seconds
EDA Change
0.58
0.29
-4.8E-005
-0.29
delta micro Mho
Anticipatory
Event
515.00
520.00
525.00
530.00
seconds


Clip 13: 20 year old Female, Experienced
critical point 159.405
Skin Conductance Response
EDA Change
3.00
2.00
1.00
0.00
-1.00
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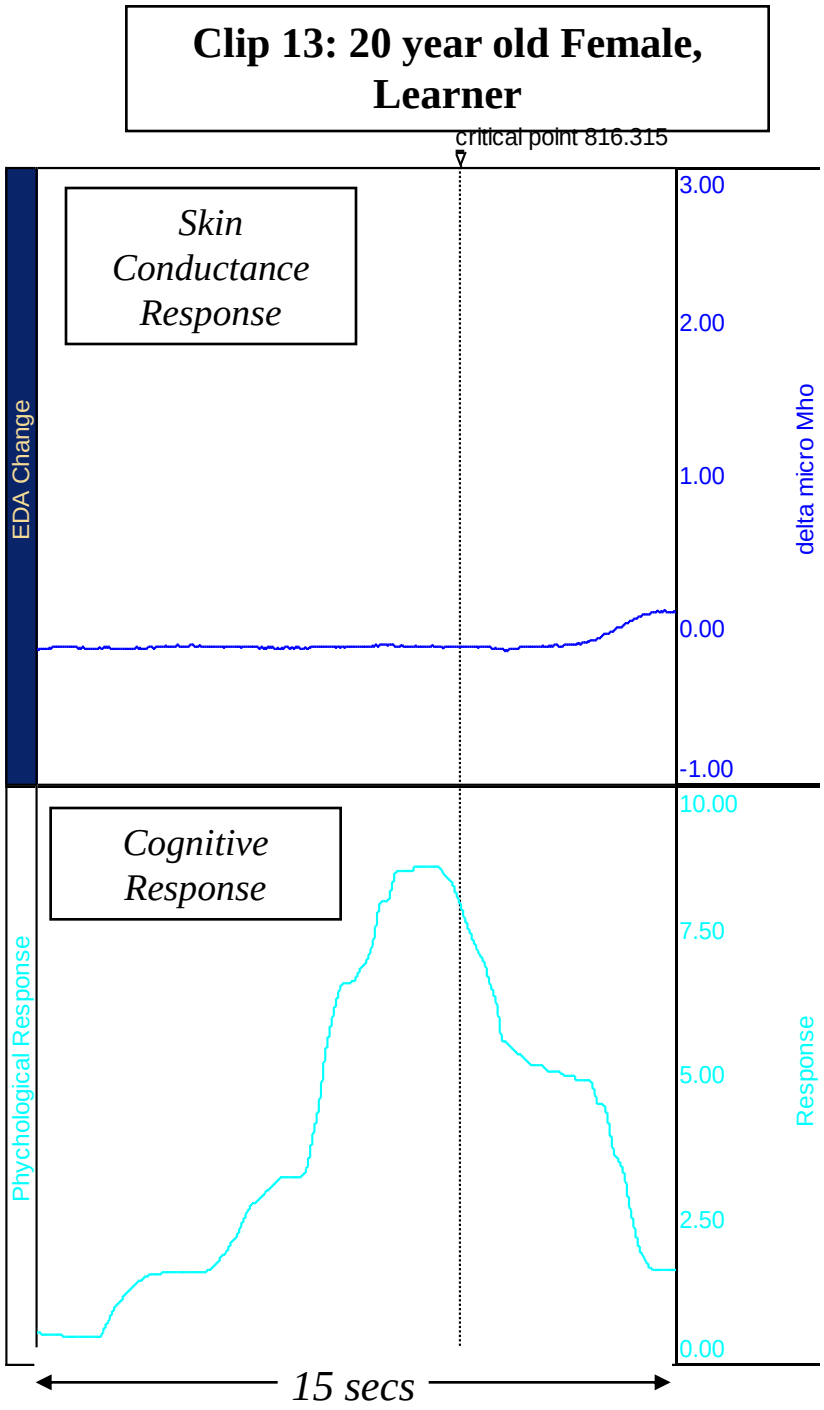
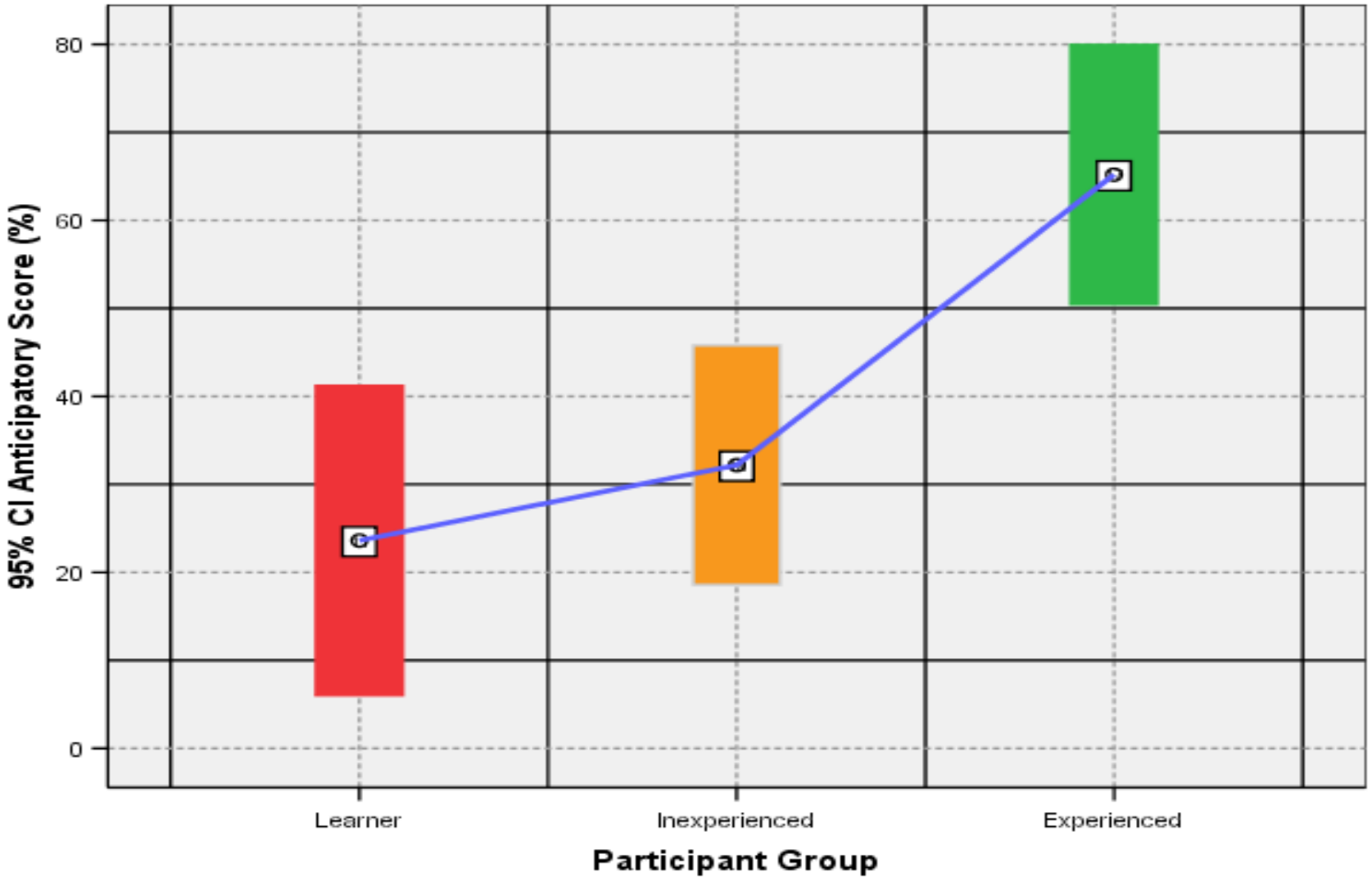
Cognitive Response
Phychological Response
10.00
7.50
5.00
2.50
0.00
Response
15 secs


Clip 13: 20 year old Female, Learner
critical point 816.315
Skin Conductance Response
EDA Change
3.00
2.00
1.00
0.00
-1.00
delta micro Mho
Cognitive Response
Phychological Response
10.00
7.50
5.00
2.50
0.00
Response
15 secs

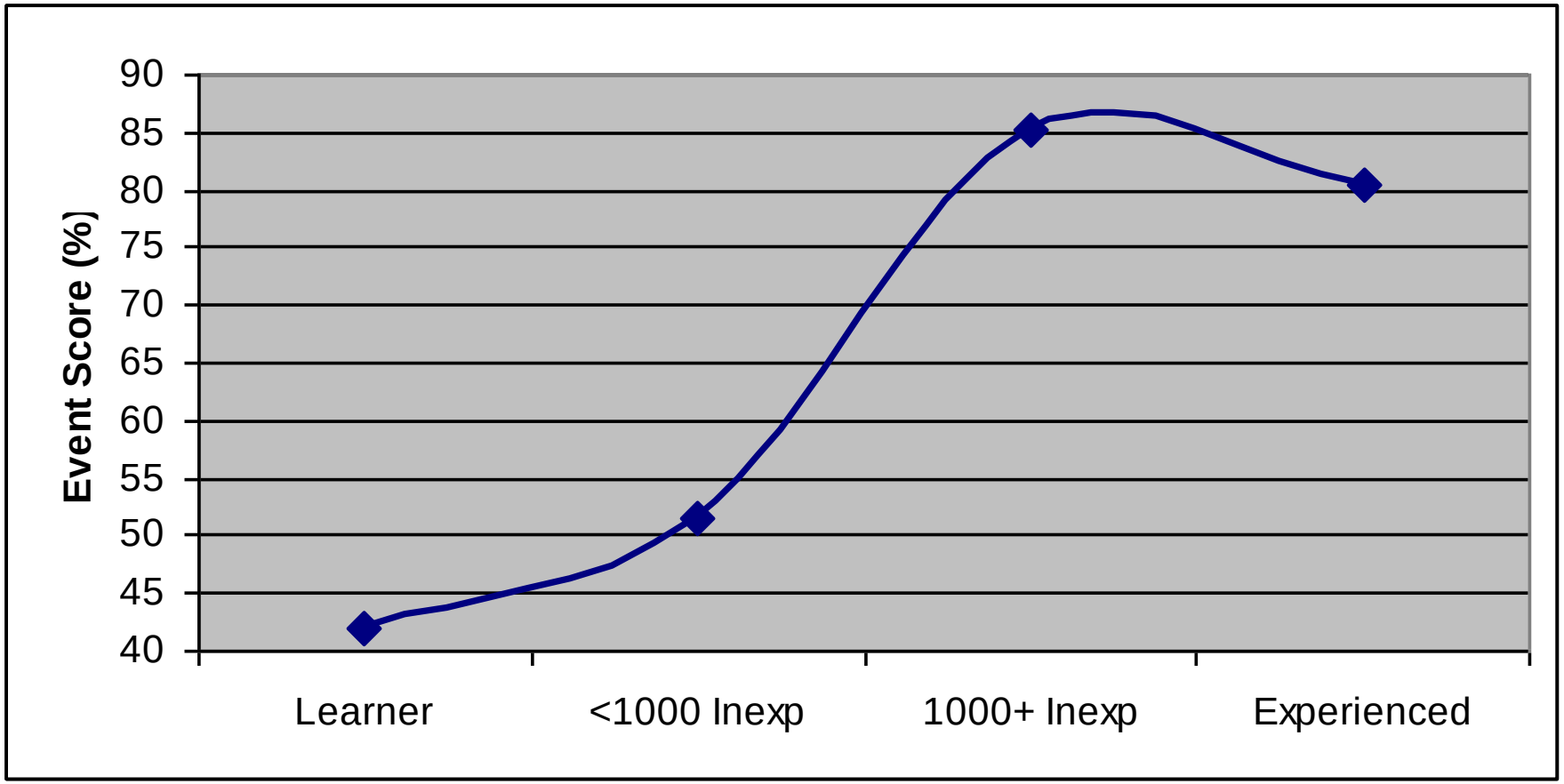


Post Hoc: Tukey

Learner v Inexperienced	ns
Learner v Experienced	p=.002
Inexperienced v Experienced	p=.004

F(2,43)=9.583; p<.001

Anticipatory Score (%) by Experience

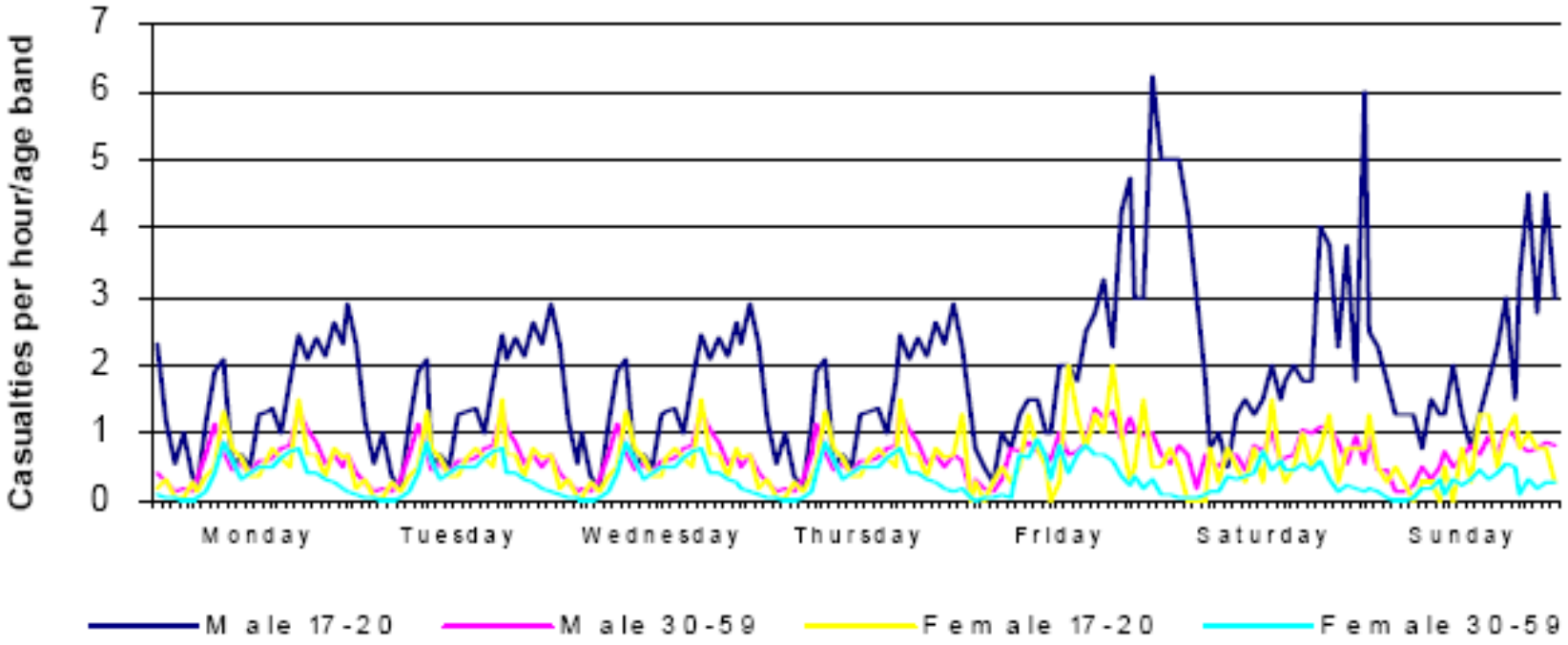


Post Hoc: Tukey

Learner v <1000 Inexperienced	ns
Learner v 1000+ Inexperienced	p=.028
Learner v Experienced	p=.008

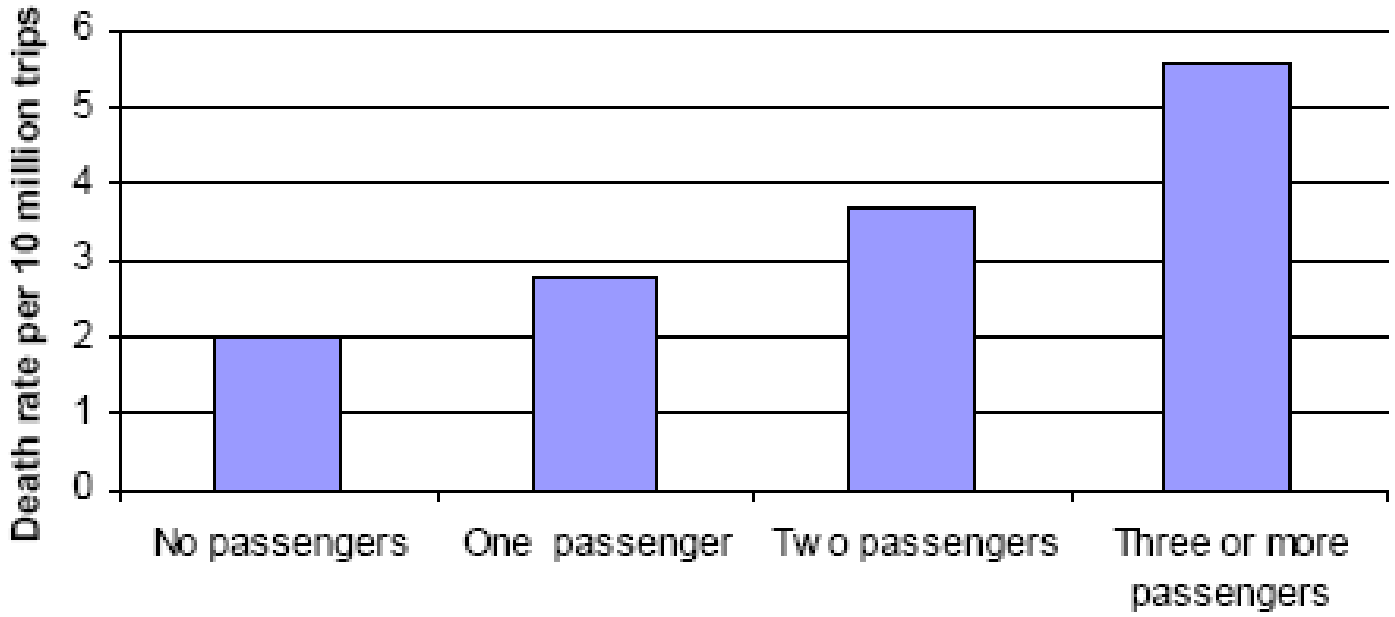
F(3,42)=5.669; p<.002

Time of Day and Novice Driver Crash Risk



Source: Department for Transport, 2003

Effect of Passengers on Novice Driver Crash Risk



Source: Chen et al (2000), US

Expressive activity: Transport into the adult realm

"Instead of using public transport you get to use cars."

"Nice silver shiny car. It has to be shiny."

'**Driving a car** …'

"It's going to be purple and hopefully a Skyline but I don't have a lot of money."

- Is a way of projecting a particular image of myself
- Gives me a feeling of pride in myself
- Gives me the chance to express myself by driving the way I want to
- Gives me a feeling of power
- Gives me the feeling of being in control
- Gives me a feeling of self confidence
- Gives me a sense of personal safety

"Windows down, music blaring and just going up and down the street."

"It would just be great, just the total feeling of freedom."

Automobile = Autonomy + Mobility

"Like you're in control of loads of speed"

"It gives me independence. Be able to go where I want when I want."

"Not relying on your parents all the time"

Autonomy - feeling in control

‘One of the reasons I like driving is because I’m in control’
[*female; age group 36-45; drives 100+ miles per week*];

‘The problem I have with public transport is that I don’t feel in control’ [*female; age group 26-35; drives 100+ miles per week*];

‘You don’t feel in control at all on public transport and you’re worried about connections all the time so you’re having to be aware of what the time is every moment’
[*female; age group 26-35; drives 10-50 miles per week*];

‘Last year I came in by public transport for about two weeks. It was hell. Freezing to death on platforms waiting for trains that were late. You’re not in control of your life – that’s the only way I can describe it, you’re just not in control. If you know the traffic jam’s there then there are ways to get around it’
[*female; age group 26-35; drives 100+ miles per week*].


Guilbert
everything for your office


Help!
A-C-T


X91

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Types of Riding

- Functional Riding

  Journey from A to B - going to work/shops

- Expressive Riding

  Journey from A to A - riding just for enjoyment

Risk and Enjoyment Factors

Enjoyment Factors

Non Flow	Flow
The Rush (Speed) • Visibility • Overtaking • Speed • Temptation	**Challenge (Bends)** • Bends • Challenge • Surface

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Why do drivers speed?

Because … .. **they can**

Car, road geometry, traffic flow, weather, task difficulty, no cameras, etc..

"'Do you not think though as well, if we're that concerned about speed and safety, that car manufacturers and the Government could do more to control the performance of vehicles? What's the point of being able to buy a Ferrari that's able to do 200 mph when you're only ever supposed to go at 70 on our roads in this country? Why have that facility? M Professional driver.

Because … .. **they're pressed to**

Obligations, time and schedule pressure, expectations, etc..

"'If you've got a job and it's job and finish, you know it's like delivering whatever, and it's like "hang on a minute if I can get all them delivered by 2 o'clock, I'm away home'." M Delivery driver.

Because … .. **it feels good**

Thrill-seeking, competitiveness, boredom susceptibility, progress interrupted, etc..

"I'm a pretty careful driver, but every now and again, it's cool to go fast and it feels good." M 17-24.
How does it make you feel, speed? "Kind of exhilarating." F 17-24 .

'Yeah, it is, it's a great feeling. Your head feels empty, you're just scooting along and your going "this is the business". You know, a bit of speed and the first time you do it, woo-hoo, look at me! You know.' Biker.

'I really enjoy driving fast' Agree: 19%

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CHANGE	BY	e.g.,
External environment	engineering, enforcement	**on road**: cameras, traffic lights, curvature
Vehicle characteristics	engineering, enforcement	**in-car**: ISA, ITS, secondary safety
Driver characteristics	education, licensing	**in-driver**: re-socialisation

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Seven steps to workplace safety

When persons are employed to operate large and dangerous pieces of equipment, the following conditions typically apply:

1 there is a rigorous selection procedure
2 there is extensive initial training
3 there is frequent supervision providing fast feedback to the operator
4 there is regular audit and appraisal of continuing competence
5 there is continual updating as operating conditions & equipment change
6 there is retraining and remediation when necessary
7 there are mechanisms for removing those whose manner of operation threatens the safety of themselves or others.

Driving, is it a right or a responsibility?

Periodic Driver Refresher Training

means

Life-long Learning

Courses for speeders and other violators (e.g., red light runners)

Incident-driven 9 Point Club; Red-runners; Crash-involved; Speed Awareness

Duration-driven Every 5 or 10 years (57% ‘Agree’: RAC 2002)

Function-driven White vans; drive-as-work (including huge ‘grey fleet’)

THESE PEOPLE NEED HELP

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