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‘Attitudes’ towards speeding: Identifying levers for reducing motorcyclists’ speeding behaviour

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BIKERS AND PTW’s:

Accident Prevention and Collision Investigation, engineering and research



Background

- Motorcyclists are over-represented in official crash statistics:
 - Over 400 motorcyclists (versus under 30 car drivers) are involved in an injury RTC per 100 million vehicle kilometres¹
 - Account for 10% of all traffic casualties and 20% of all fatalities¹ but motorcycles account for just 4% of all registered vehicles²

Sources:

¹Department for Transport (2009). Road Casualties Great Britain: 2008.

²Department for Transport (2009). Transport Statistics Bulletin: Vehicle Licensing Statistics: 2008.



Background

- Numerous contributory factors to motorcycle crashes
 - e.g. Lin & Kraus (2009)
- Speed violations (incl. breaches of the legal speed limit) among the most important
 - e.g. Elliott et al. (2007); Horswill & Helman (2003); Sexton et al. (2005)
- Need to identify what it is that makes some riders speed and others not
 - i.e. What variables determine how a rider behaves?
- Those variables also need to be ‘changeable’ if they are to be used as ‘levers’ for promoting safety
- Dearth of research of this type in the context of motorcycling
- In other domains (e.g. car driving) this issue has been addressed by examining people’s ‘attitudes’



Background

- What do we mean by ‘attitude’
- Concept of ‘attitude’ is often used as an ‘umbrella term’ to describe a multitude of separate constructs that psychologists call ‘social cognitions’
- E.g...



Background

- Speeding is an ‘attitude problem’:

“People speed because they think that doing so it will get them to destination quicker or because they think there is little chance of being caught by the police”

- Psychological construct:

‘Attitude’

- Definition:

‘Extent to which a person thinks that doing a behaviour (e.g. speeding) will be good (lead to positive consequences) or bad (lead to negative consequences) for them personally’



Background

- Speeding is an ‘attitude problem’:

“People speed because they think that it will impress their friends”

- Psychological construct:

‘Subjective norm’

- Definition:

‘Extent to which a person thinks that they will receive social approval or disapproval for doing a behaviour (e.g. speeding)’



Background

- Speeding is an ‘attitude problem’:

“People speed because they think that it is easy to do, they cannot stop themselves from doing it (e.g. motorcycles capable of extremely fast speeds/certain road environments facilitate speeding)”

- Psychological construct:

‘Perceived control’

- Definition:

‘Extent to which a person thinks that they have control over whether or not they perform a behaviour (e.g. speeding)’



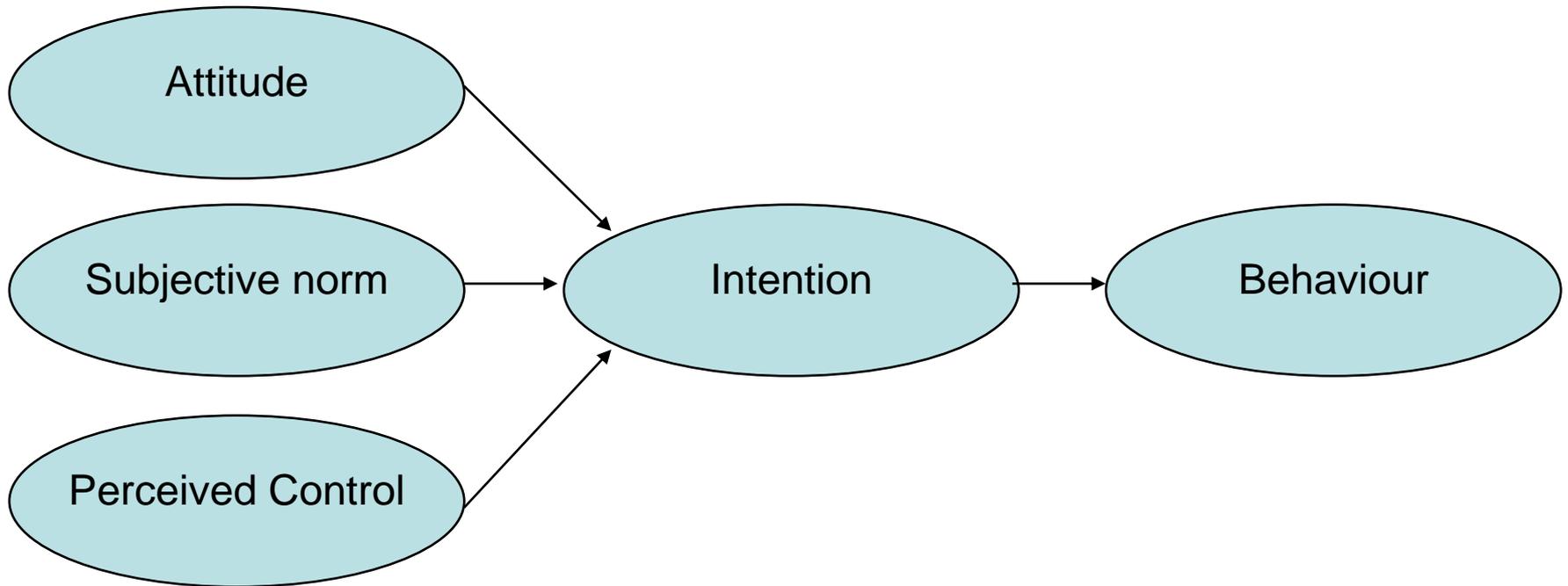
Background

- Multitude of these cognitive ('attitude-type') variables
- Important to distinguish between them because some may influence how people decide to behave and some may not
- Important to identify which ones predict behaviour
 - Theoretical value: Help us to understand why people behave the way they do
 - Applied value: Help us to understand what we need to change in order to change behaviour (i.e. what are the 'levers' for changing behaviour?)
- Common-sense dictates that each cognitive variable is important in determining behaviour
- But scientific research (in other domains) shows that only some really do determine how people behave; some do not
- Which ones are important with respect to motorcycling and therefore are likely to be the appropriate 'levers' for reducing speeding?
- This issue is often addressed (in other domains) through the application of psychological models of behavioural decision-making



Background

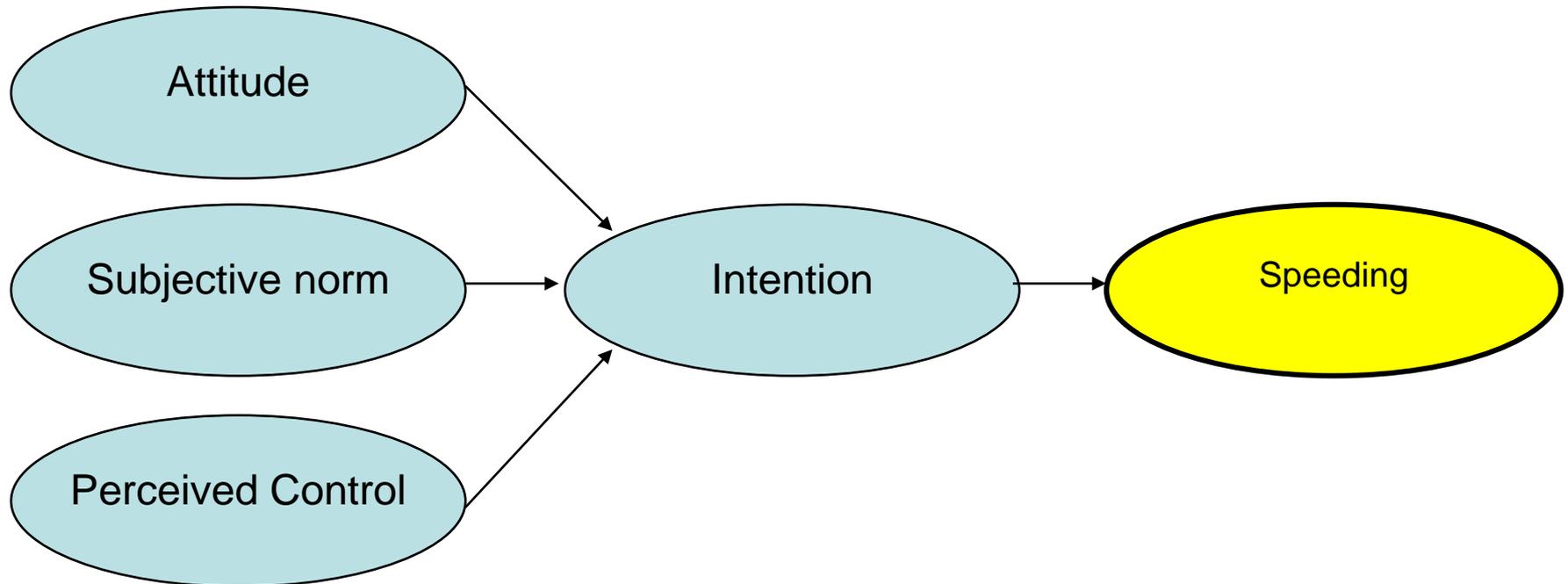
Theory of Planned Behaviour (Ajzen, 1985)





Background

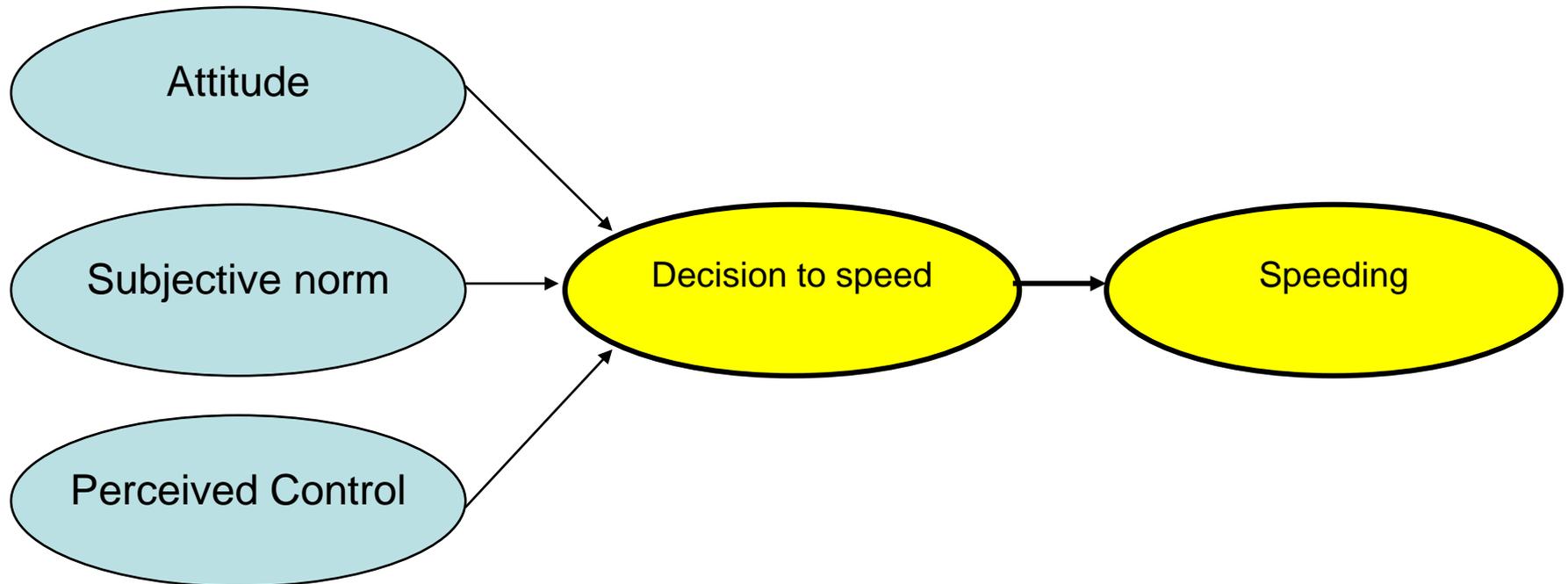
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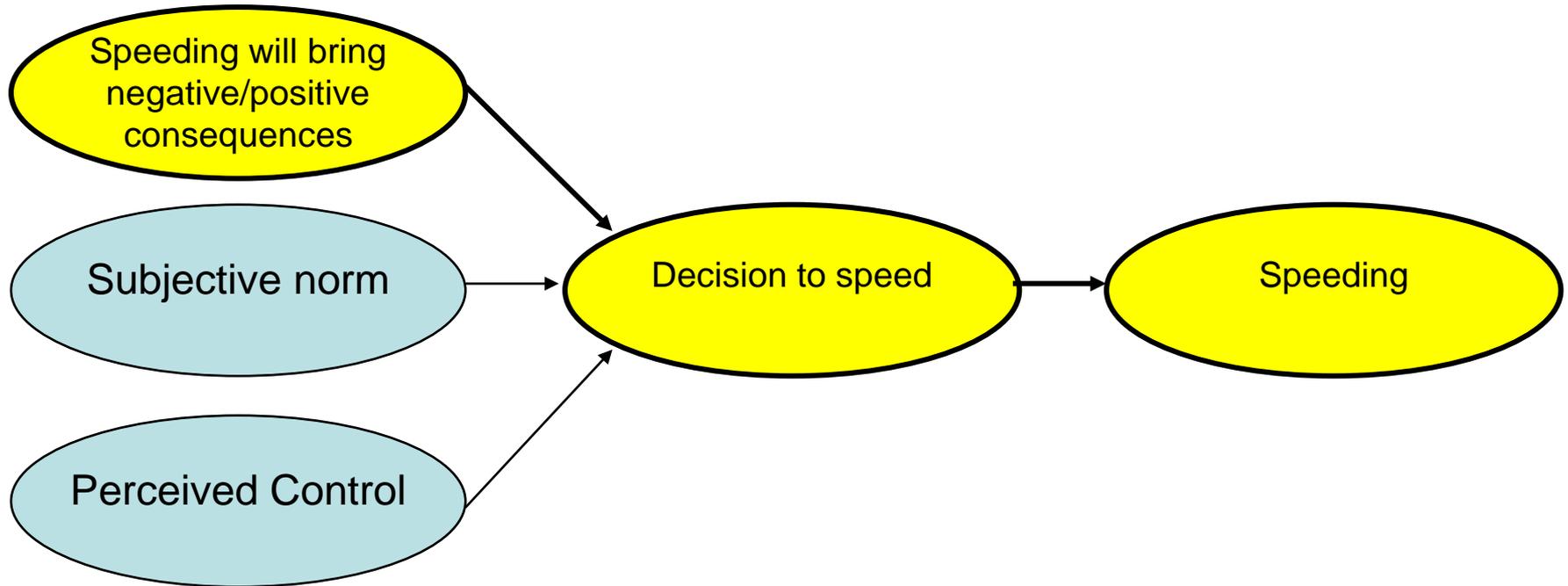
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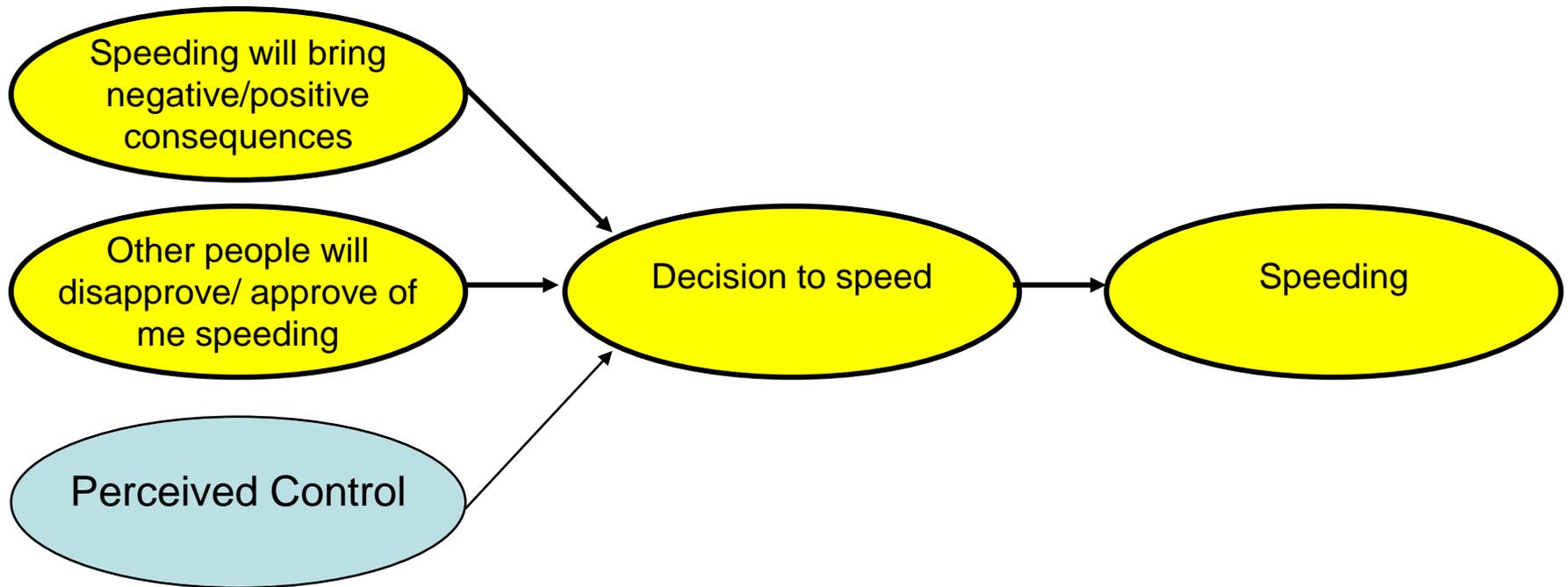
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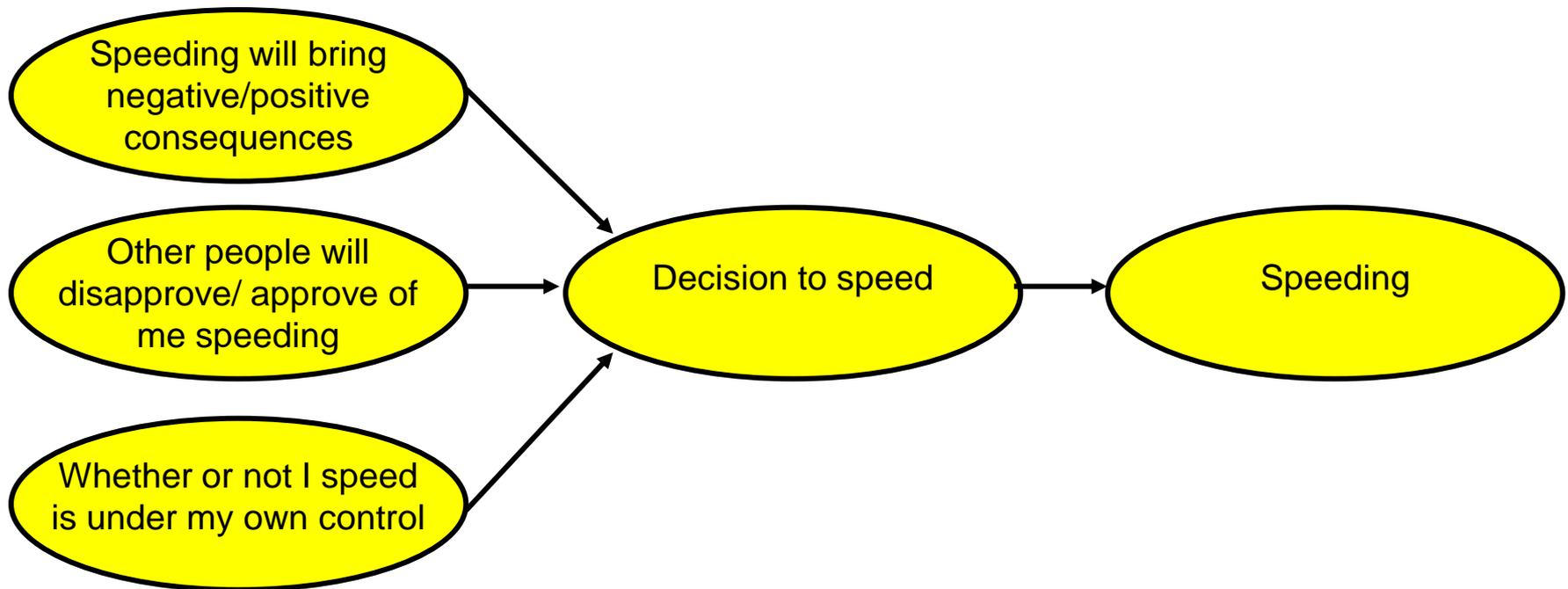
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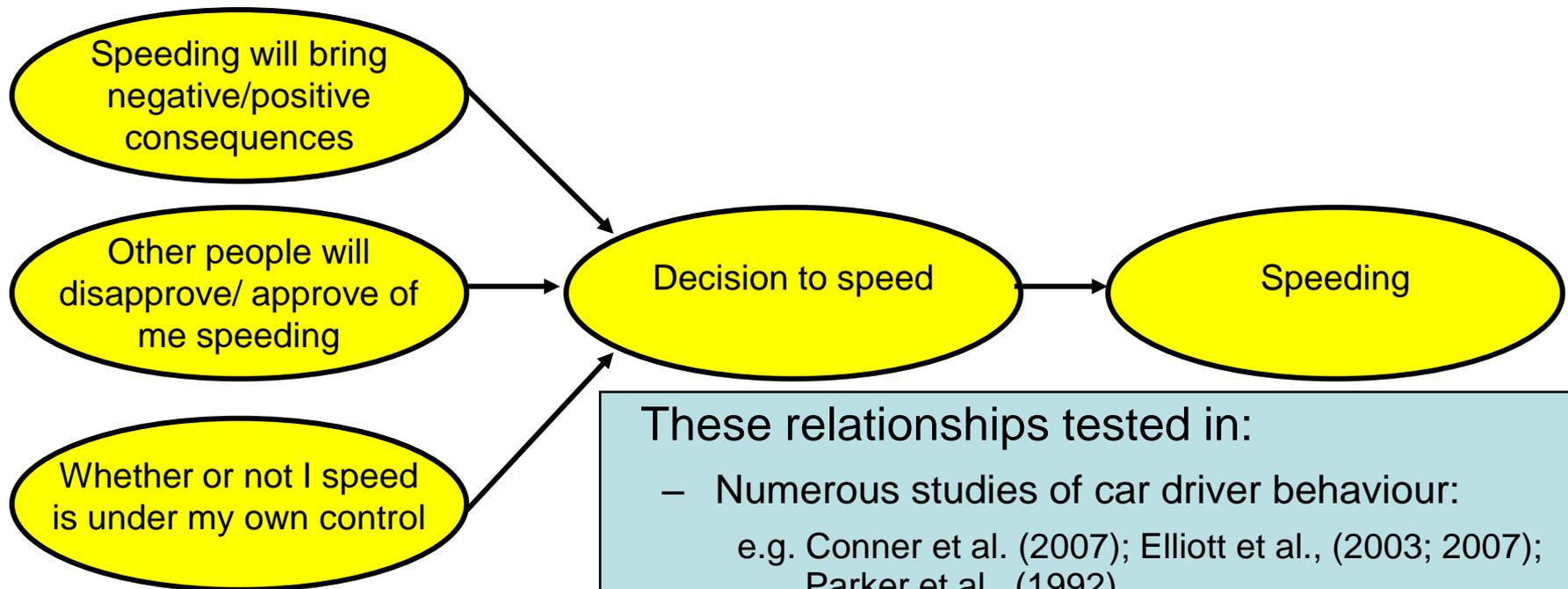
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Background

Theory of Planned Behaviour (Ajzen, 1985)



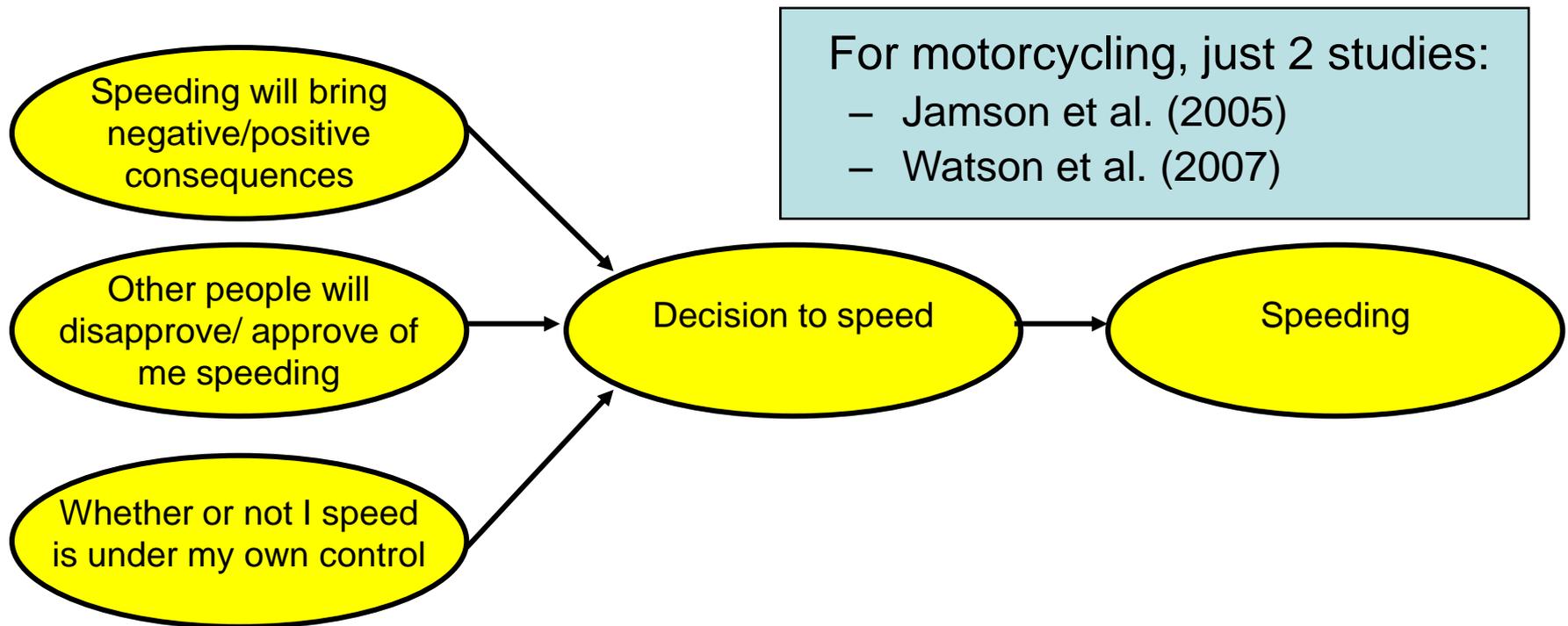
These relationships tested in:

- Numerous studies of car driver behaviour:
e.g. Conner et al. (2007); Elliott et al., (2003; 2007);
Parker et al., (1992)
- Numerous studies of non-traffic behaviours
e.g. Armitage & Conner (2001)



Background

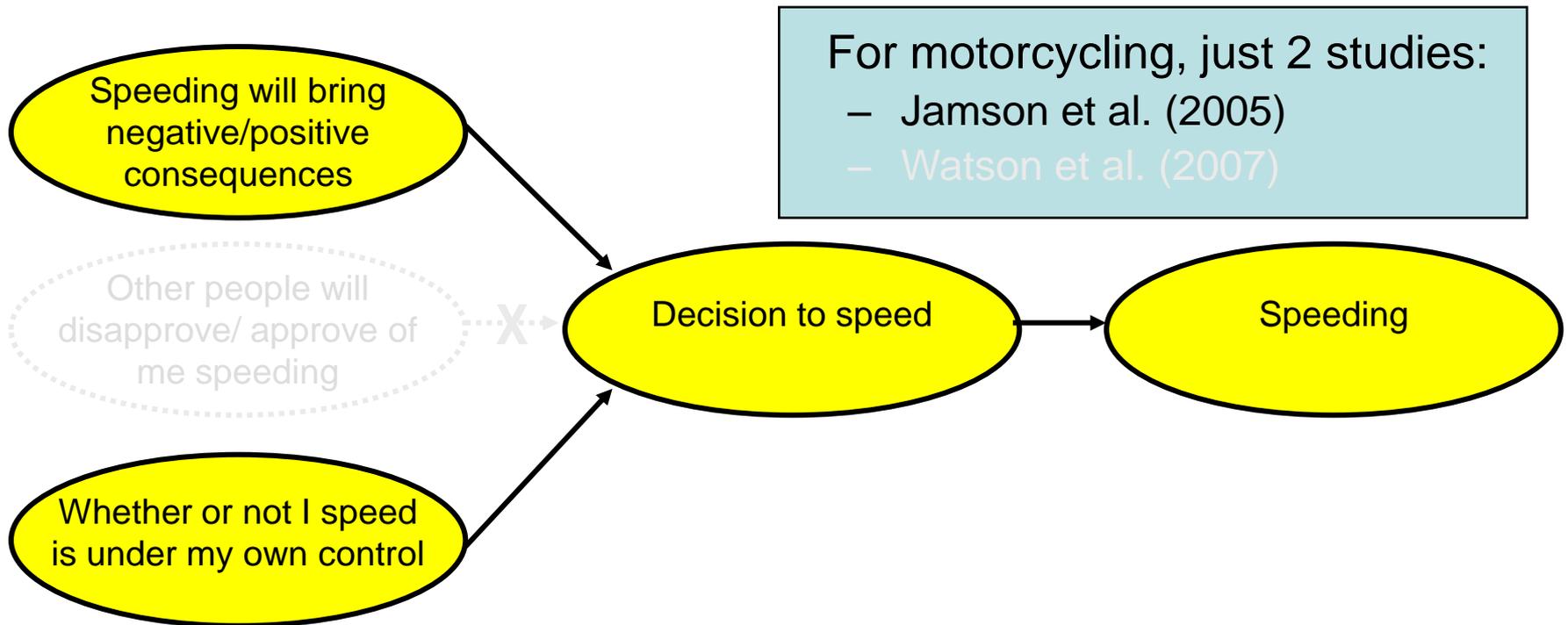
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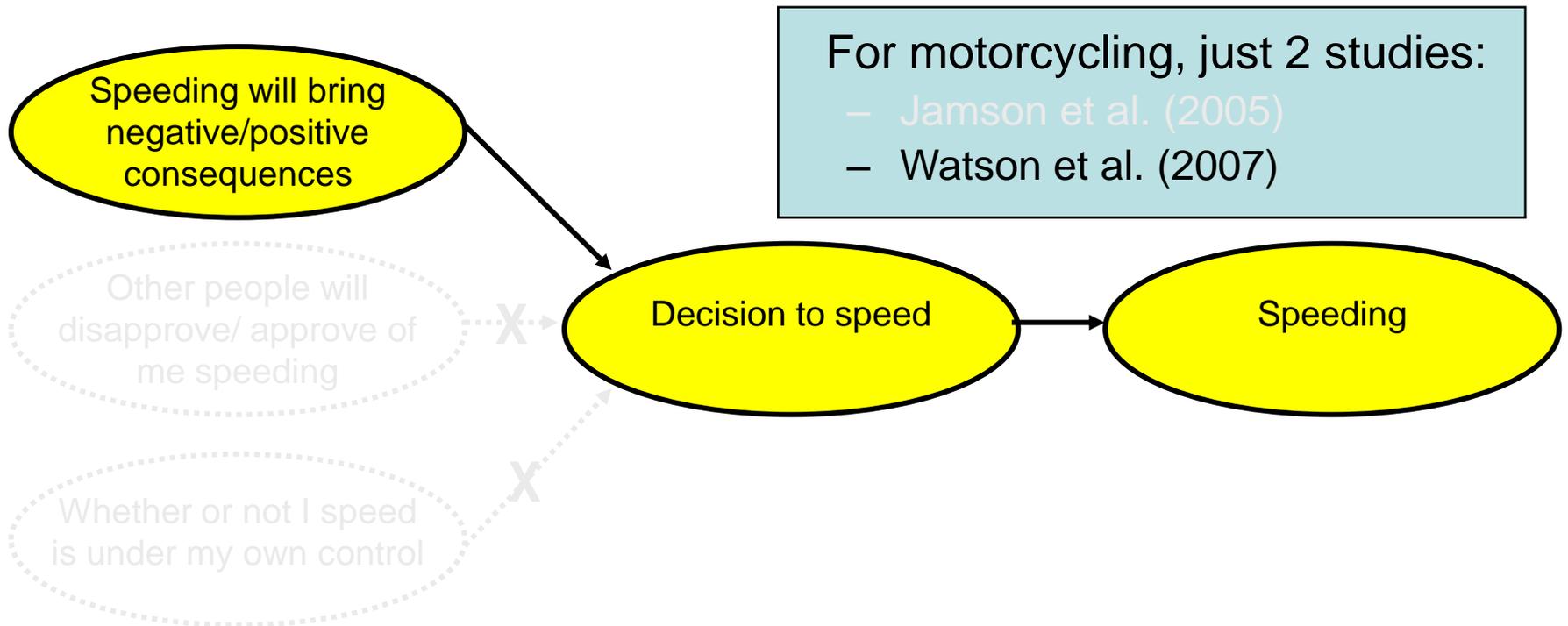
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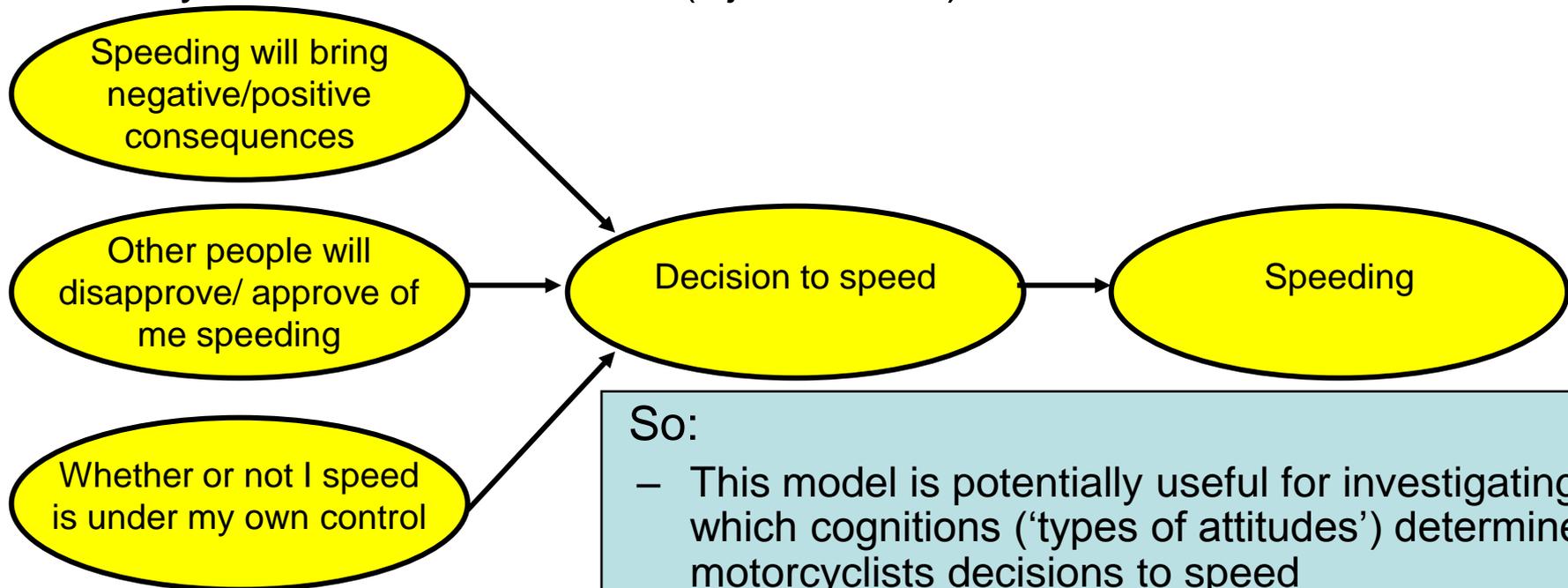
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Theory of Planned Behaviour (Ajzen, 1985)



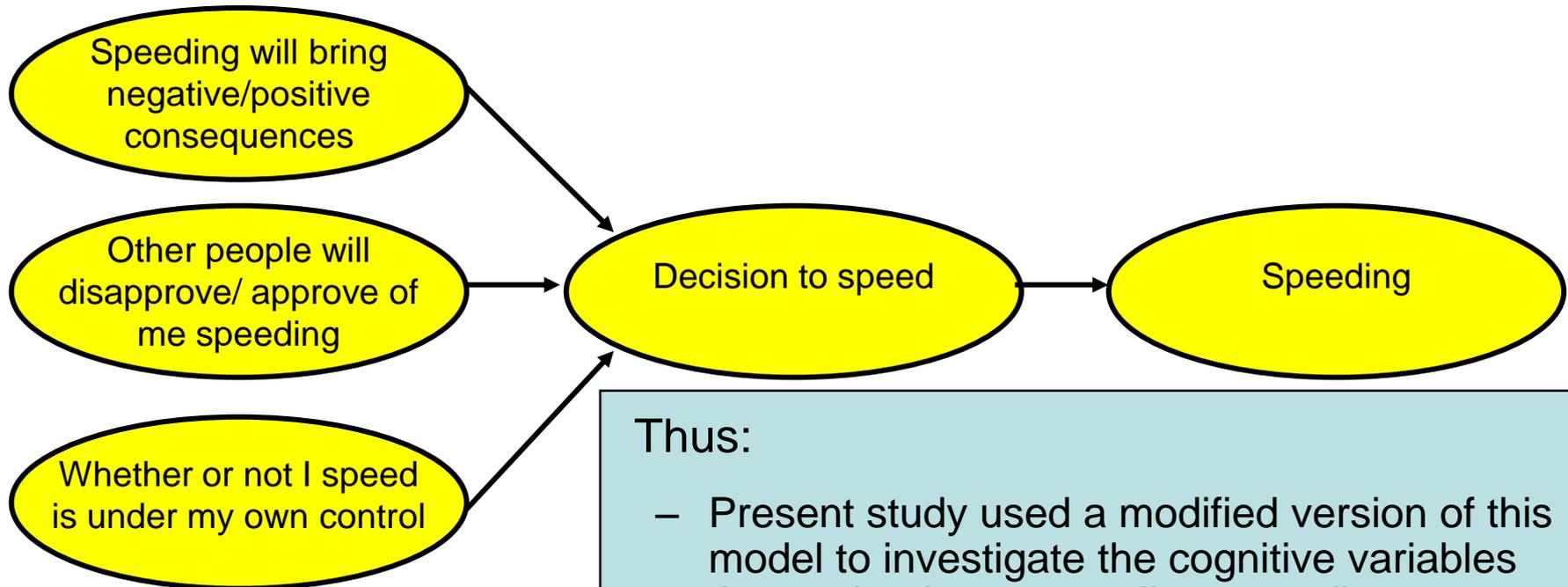
So:

- This model is potentially useful for investigating which cognitions ('types of attitudes') determine motorcyclists decisions to speed
- But research evidence not particularly strong:
 - Attitudes appear to be important
 - Subjective norm not
 - Perceived control??



Background

Theory of Planned Behaviour (Ajzen, 1985)

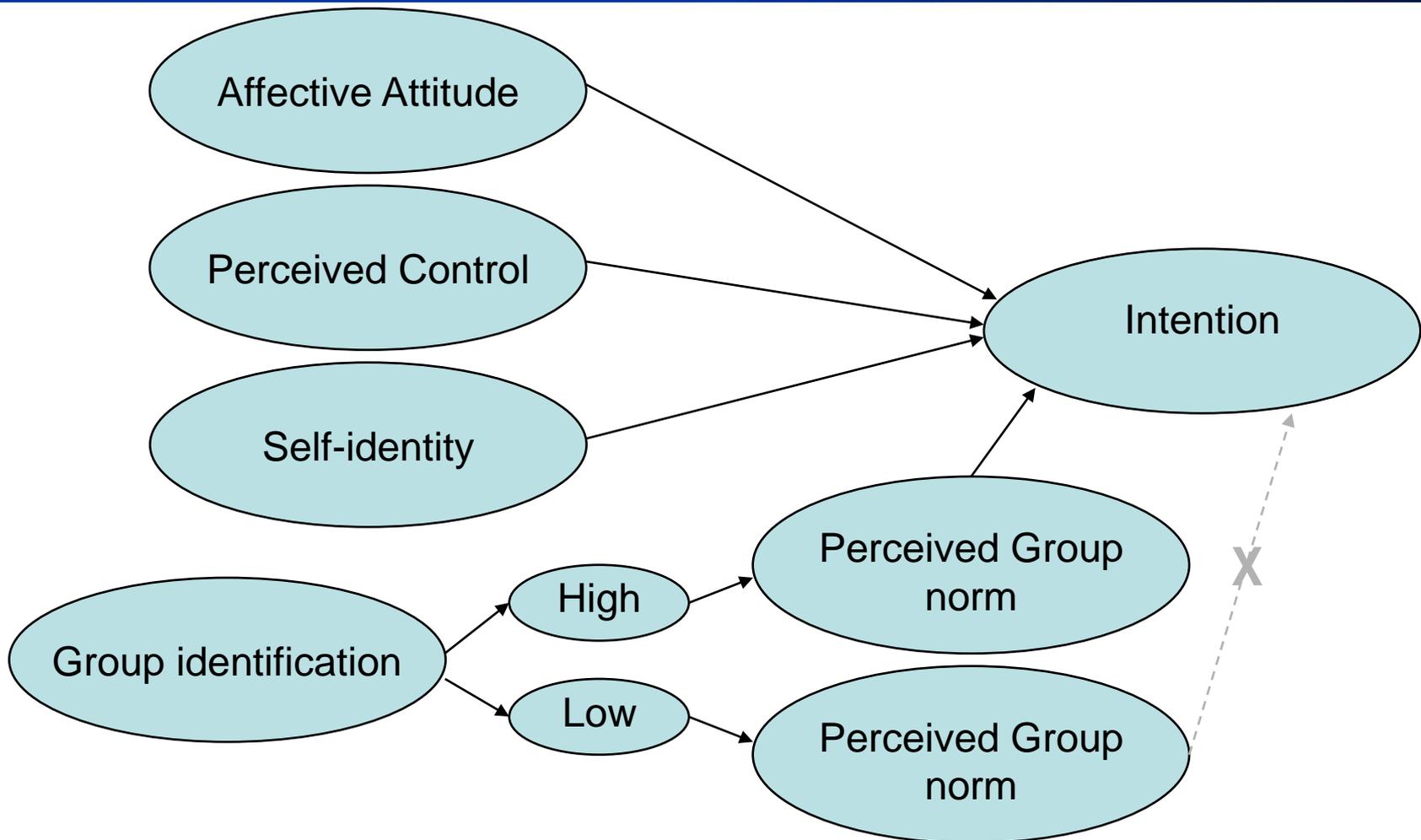


Thus:

- Present study used a modified version of this model to investigate the cognitive variables that underpin motorcyclists speeding behaviour
- Examined cognitive variables that are likely to be important in the context of motorcycling

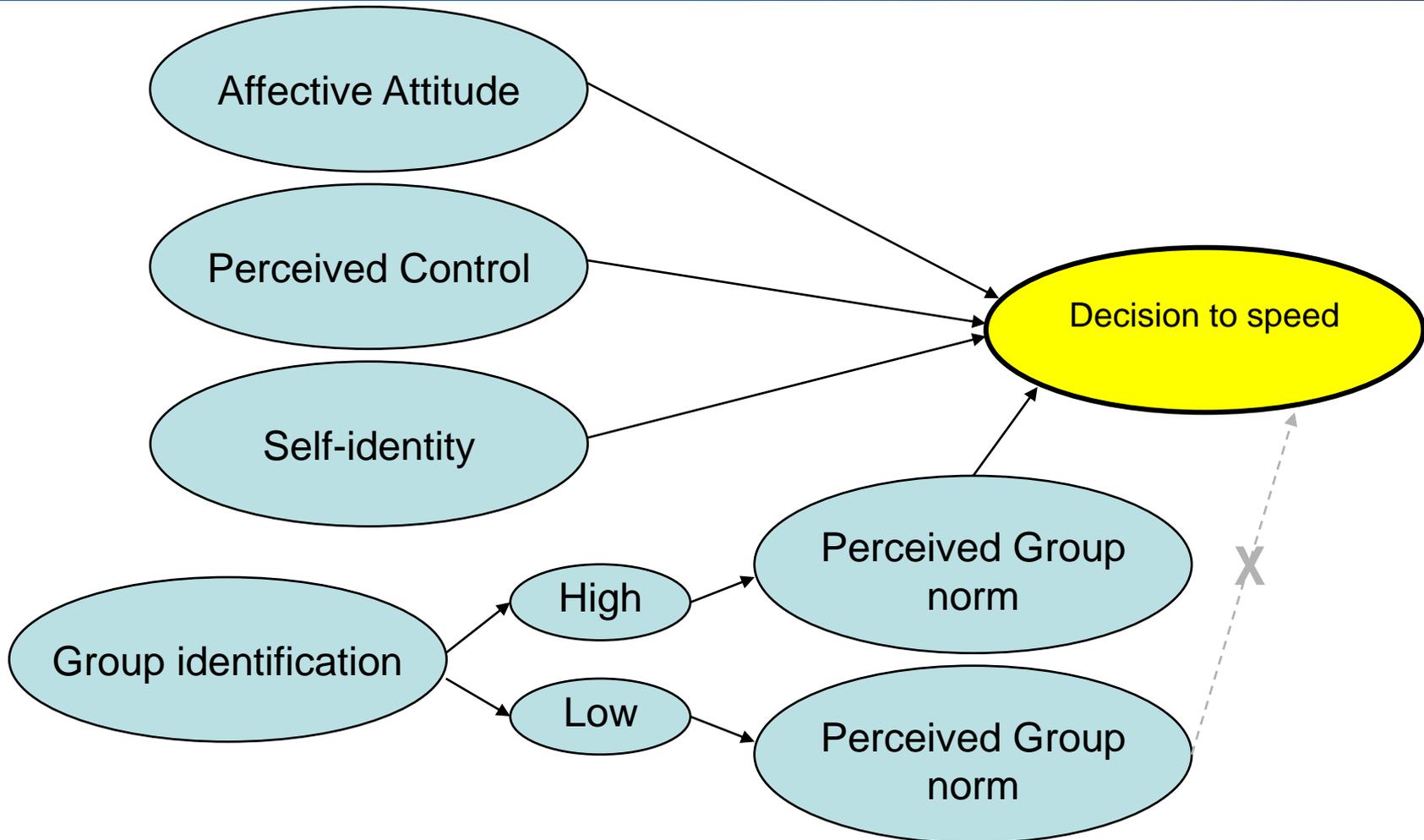


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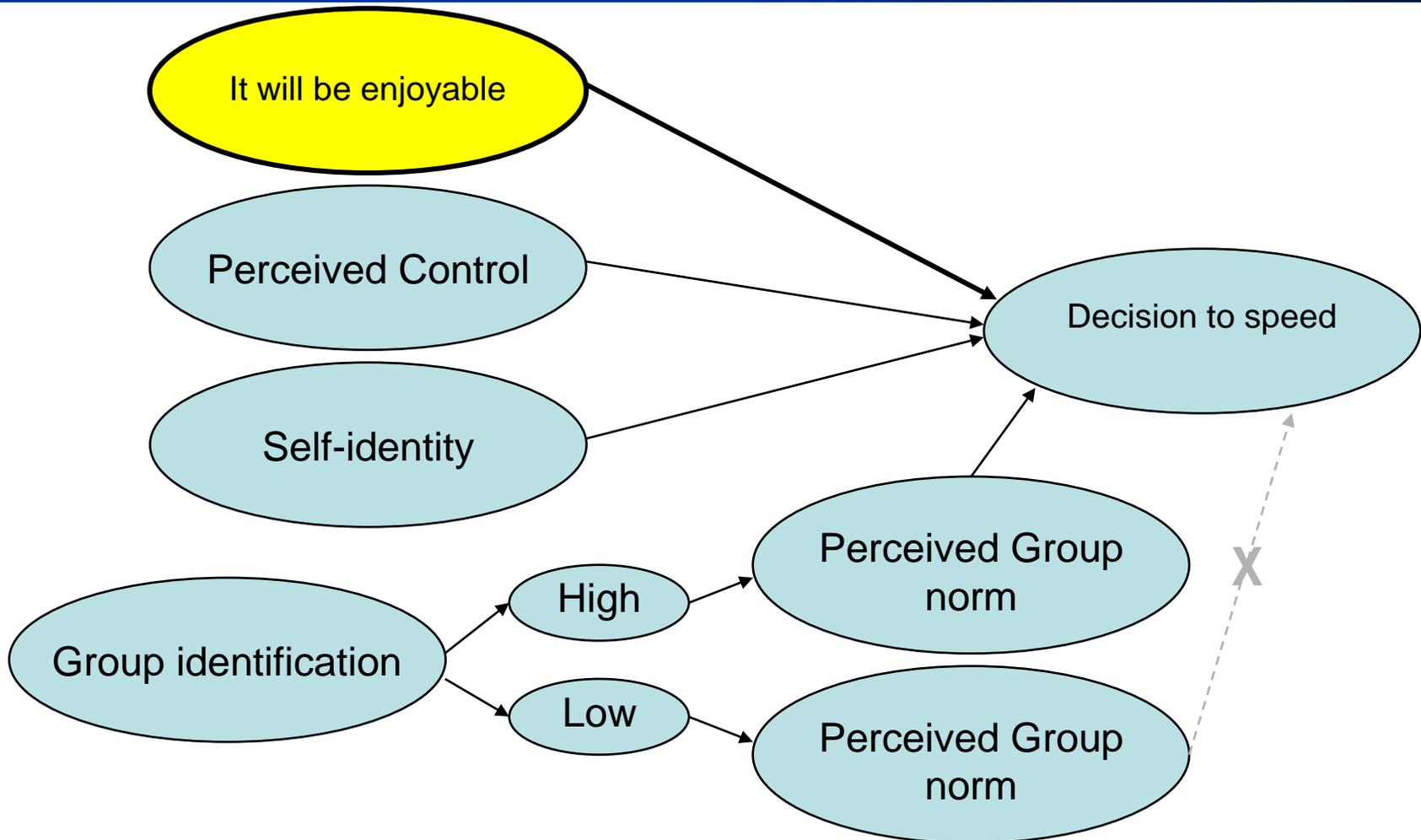


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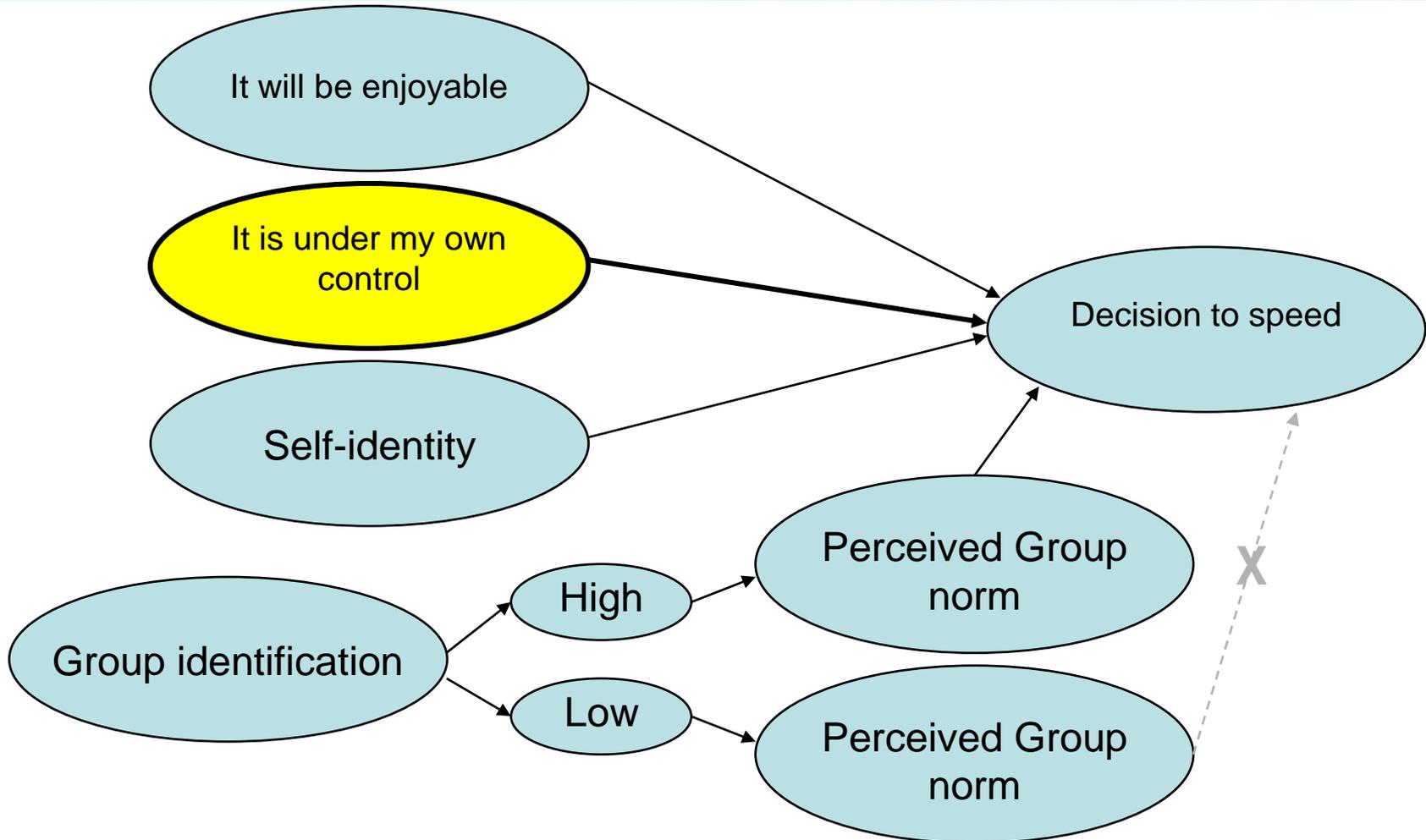


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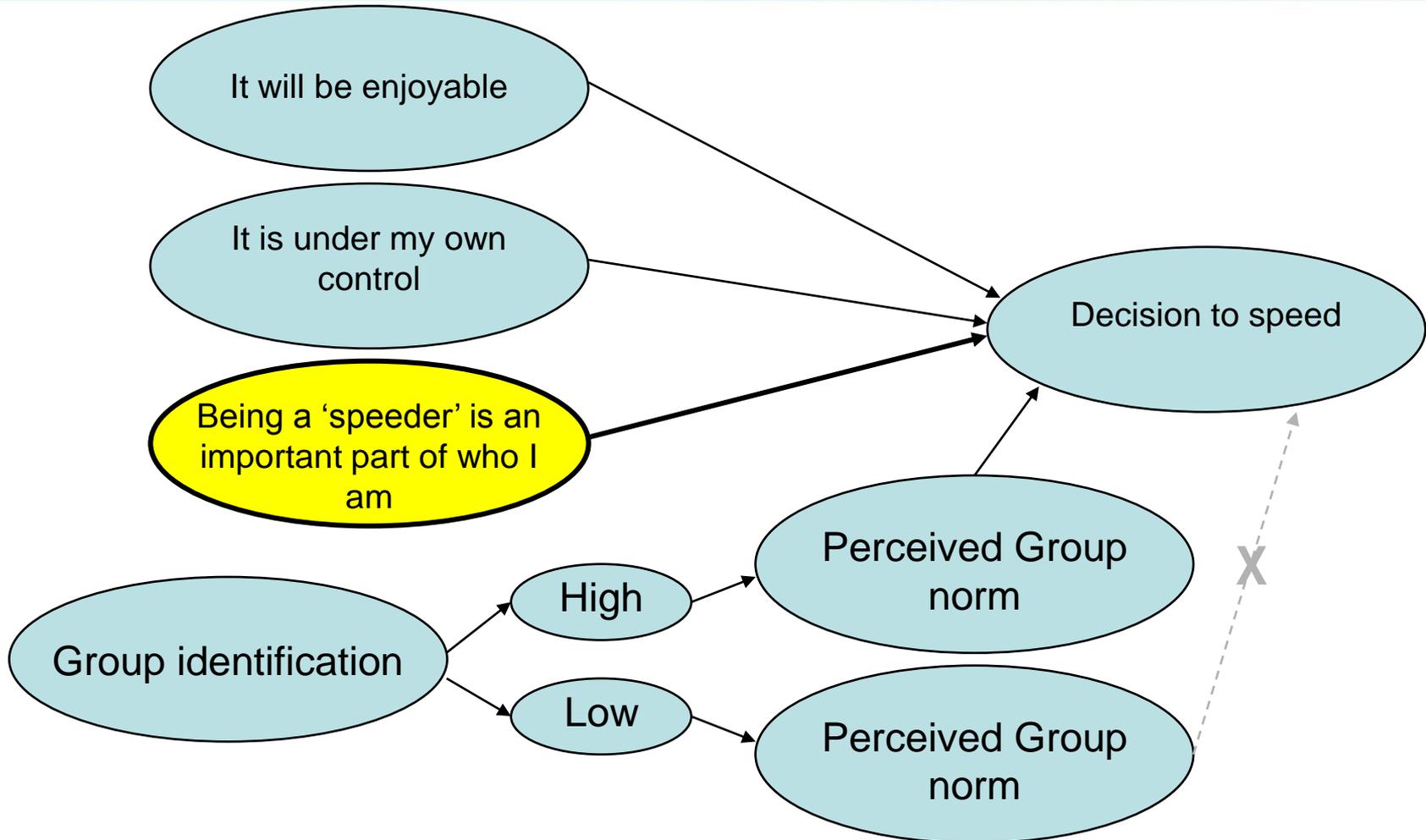


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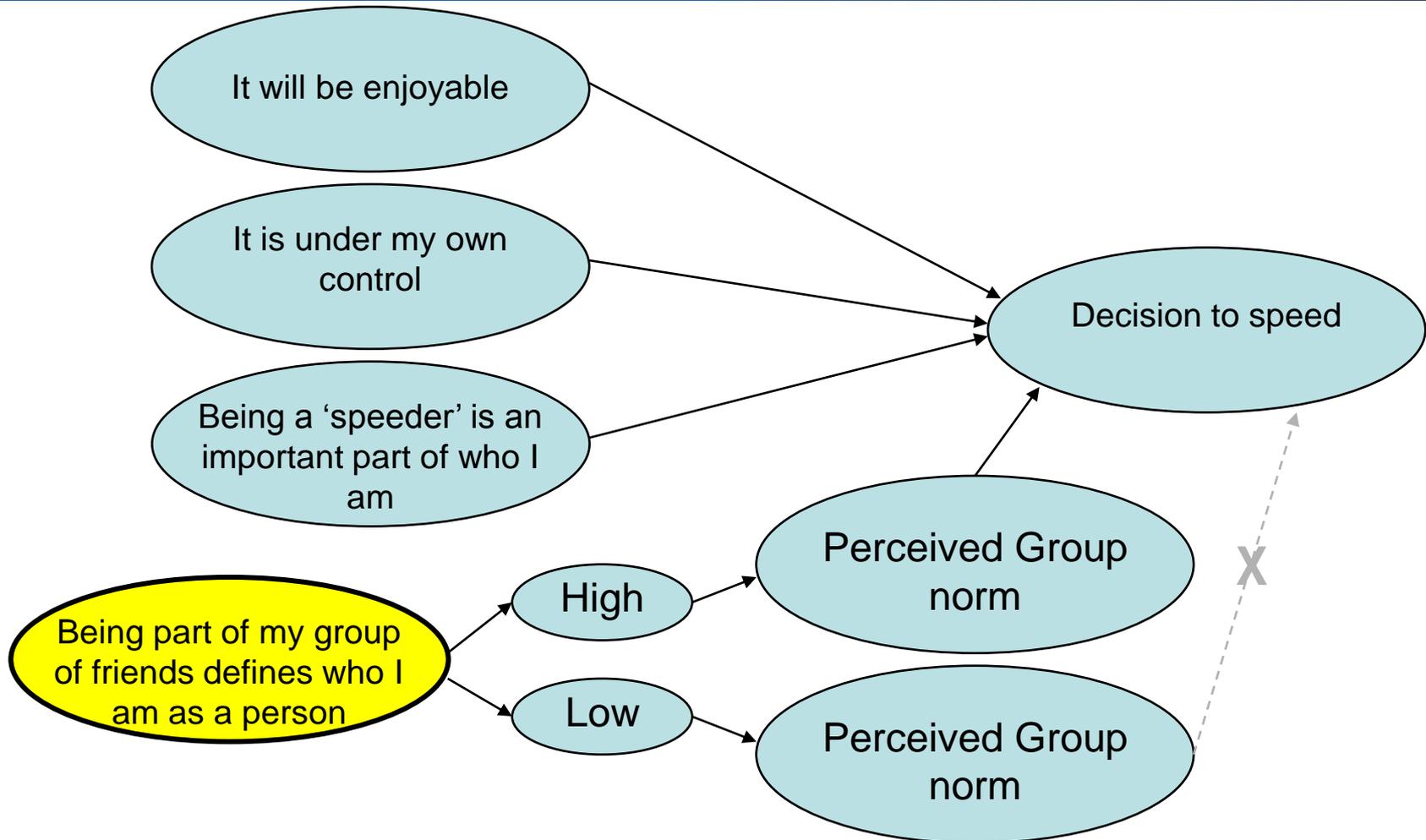


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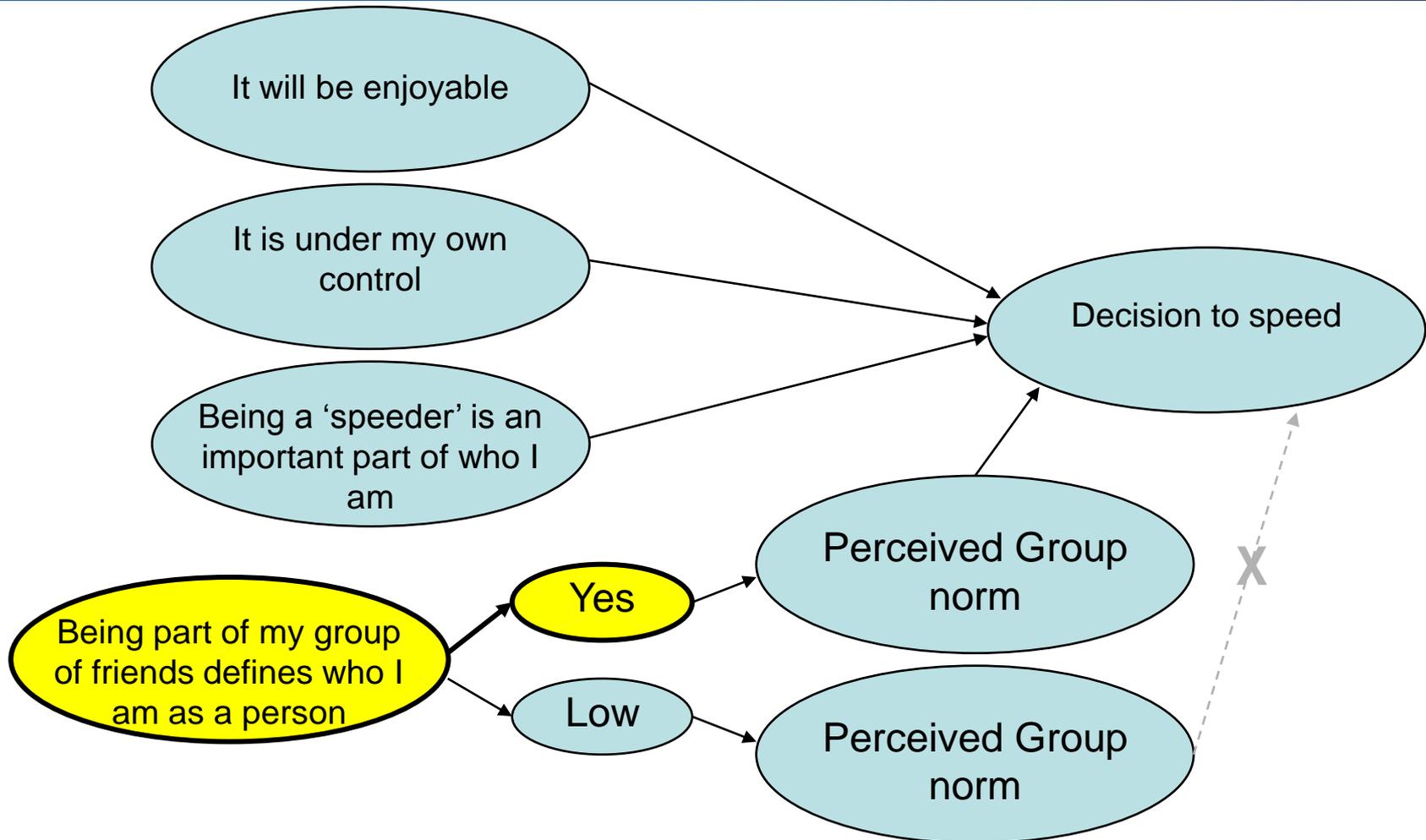


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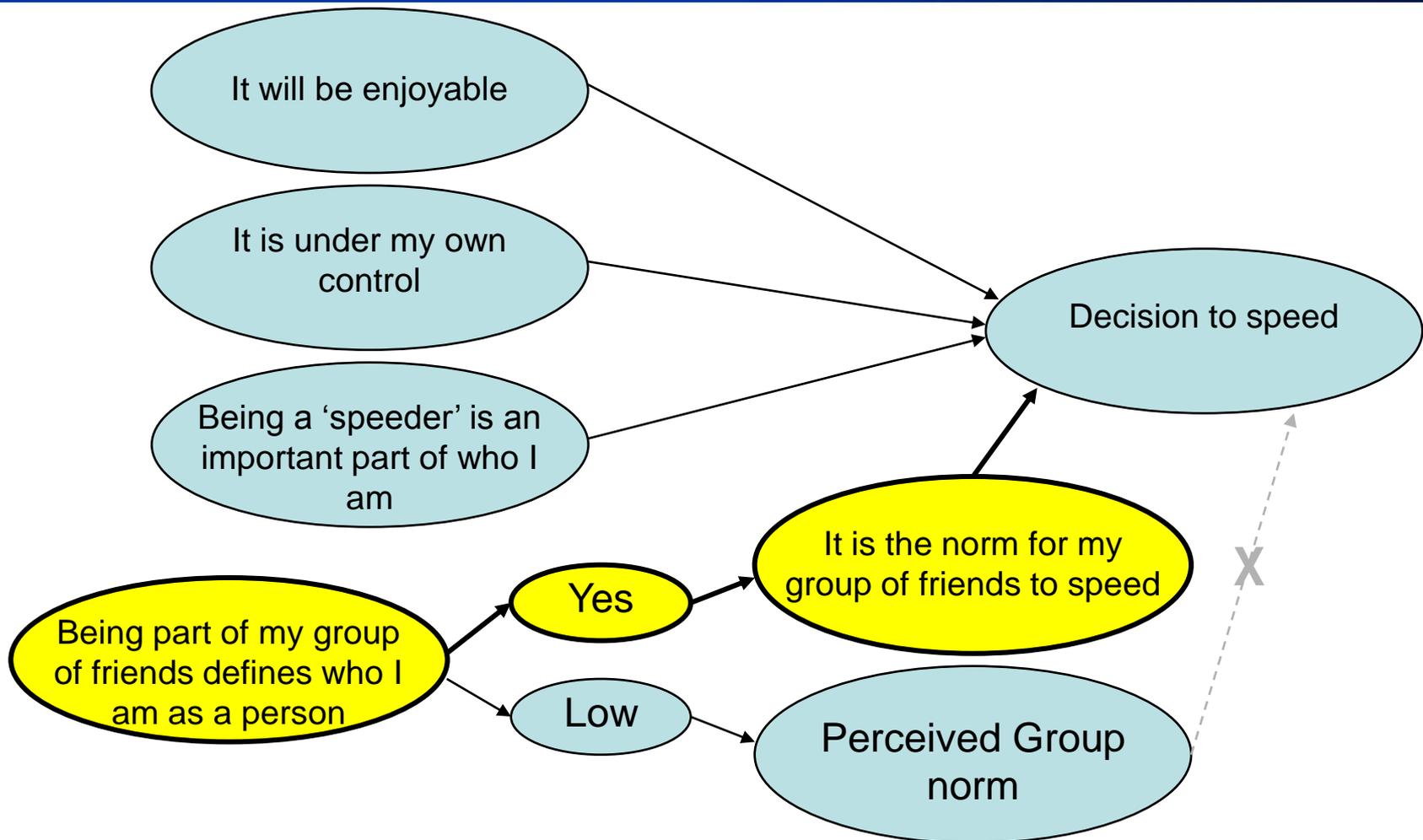


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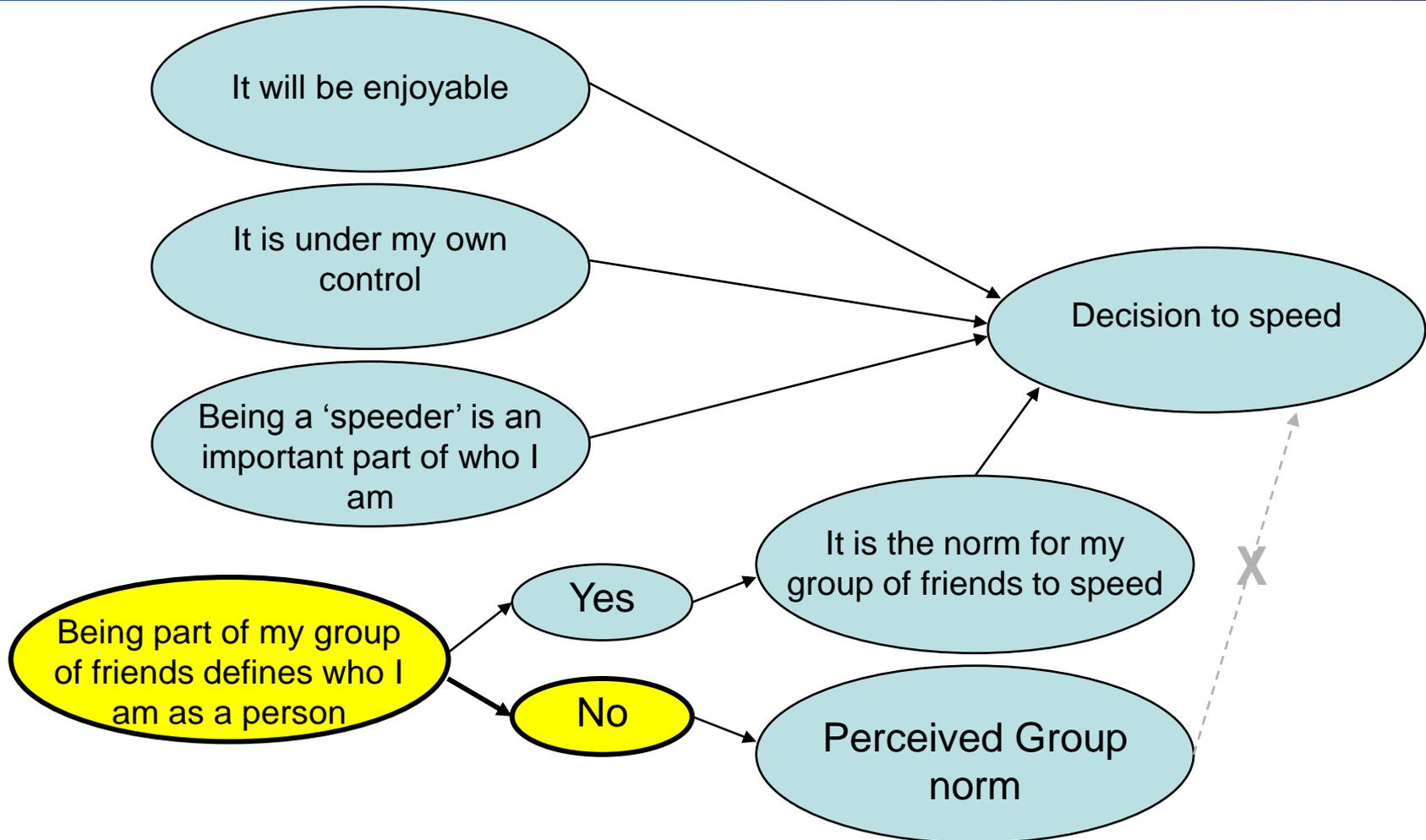


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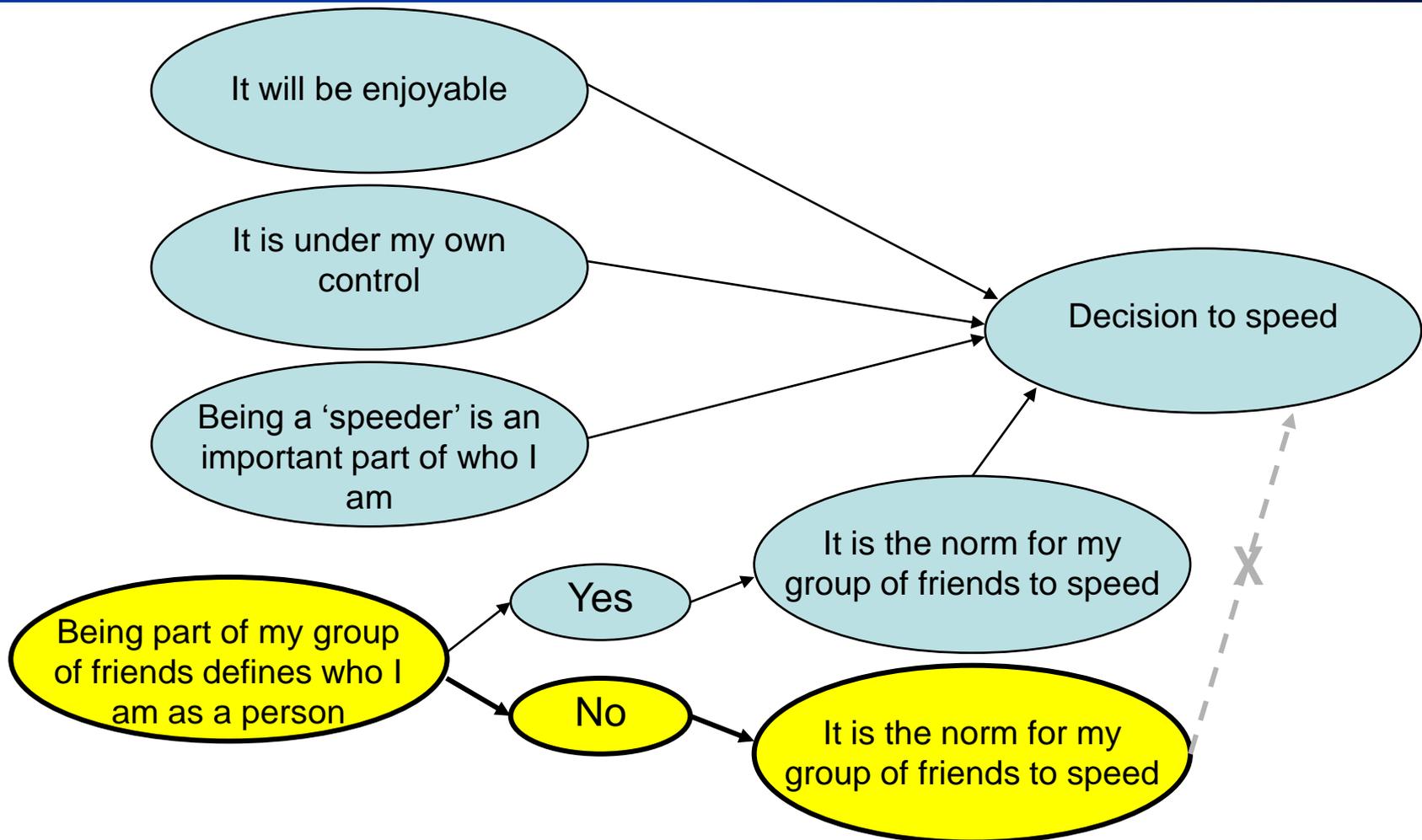


Background





Background





Aims

- To test the relationships proposed by the aforementioned model
- And in doing so...
- To provide evidence on which cognitions ('attitude' type variables) need changing via road safety interventions to reduce motorcyclists' speeding behaviour
 - So that resources for educational interventions can be targeted effectively



Method

- Web-based survey
 - 110 motorcyclists agreed to participate in the project by responding to advertisements placed on Scottish motorcycle club websites
 - Mean age = 47 (range 22-64)
 - 92% male
 - Annual mileage:
 - 5%: < 500 miles
 - 11%: Between 500 and 1000 miles
 - 40%: Between 1000 and 5000 miles
 - 32%: Between 5000 and 10000 miles
 - 8%: Between 10000 and 15000 miles
 - 4%: > 15000 miles
 - Completed an online questionnaire which asked riders about their ‘attitudes’ and intentions to speed on:
 - 30mph urban roads
 - 70mph roads (motorways and fast dual carriageways)



Online questionnaire measures

INTENTION

- To what extent do you intend to ride faster than 30mph on roads like this one in the future:

Not at all

1 2 3 4 5 6 7 8 9

A lot



- To what extent do you intend to ride faster than 70mph on roads like this one in the future:

Not at all

1 2 3 4 5 6 7 8 9

A lot





Online questionnaire measures

AFFECTIVE ATTITUDE

- For me, riding faster than 30mph on roads like this one is:

Very unenjoyable

1 2 3 4 5 6 7 8 9

Very enjoyable



- For me, riding faster than 30mph on roads like this one is:

Very unenjoyable

1 2 3 4 5 6 7 8 9

Very enjoyable





Online questionnaire measures

PERCEIVED CONTROL

- It is completely up to me whether or not I ride faster than 30mph on roads like this one:



Strongly disagree

1 2 3 4 5 6 7 8 9

Strongly agree

- It is completely up to me whether or not I ride faster than 70mph on roads like this one:



Strongly disagree

1 2 3 4 5 6 7 8 9

Strongly agree



Online questionnaire measures

SELF-IDENTITY

- Does riding faster than 30mph on roads like this one form an important part of who you are as a person?

No, not at all

Yes, definitely

1 2 3 4 5 6 7 8 9



- Does riding faster than 70mph on roads like this one form an important part of who you are as a person?

No, not at all

Yes, definitely

1 2 3 4 5 6 7 8 9





Online questionnaire measures

PERCEIVED GROUP NORM

- How many of your friends who are motorcyclists ride faster than 30mph on roads like this one?

None of them

1 2 3 4 5 6 7 8 9

All of them



- How many of your friends who are motorcyclists ride faster than 70mph on roads like this one?

None of them

1 2 3 4 5 6 7 8 9

All of them





Online questionnaire measures

GROUP IDENTIFICATION

- It is important to me that I belong to my group of friends who ride motorcycles:

Strongly disagree

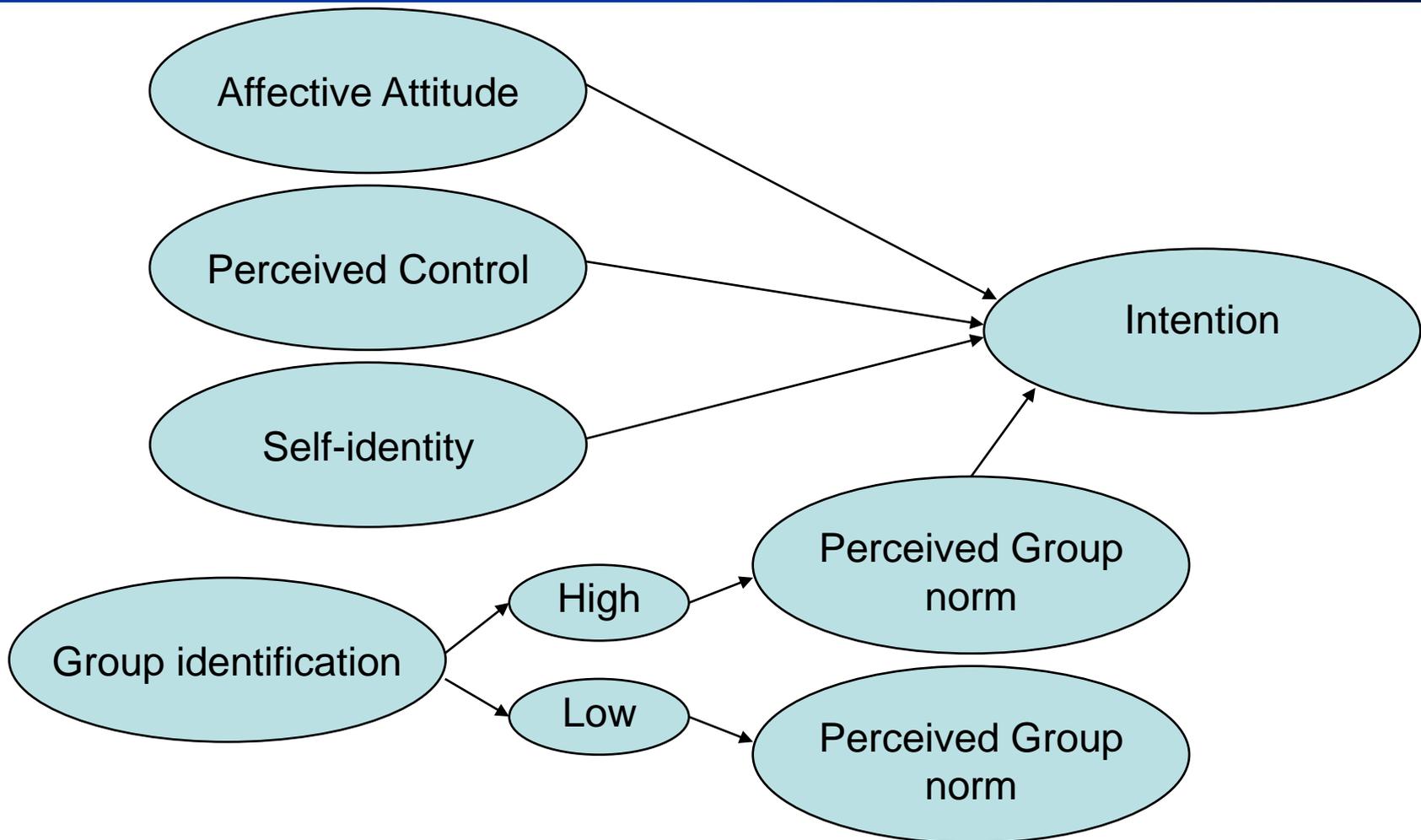
Strongly agree

1 2 3 4 5 6 7 8 9

- 5 other items like this used to measure group identification



Measures





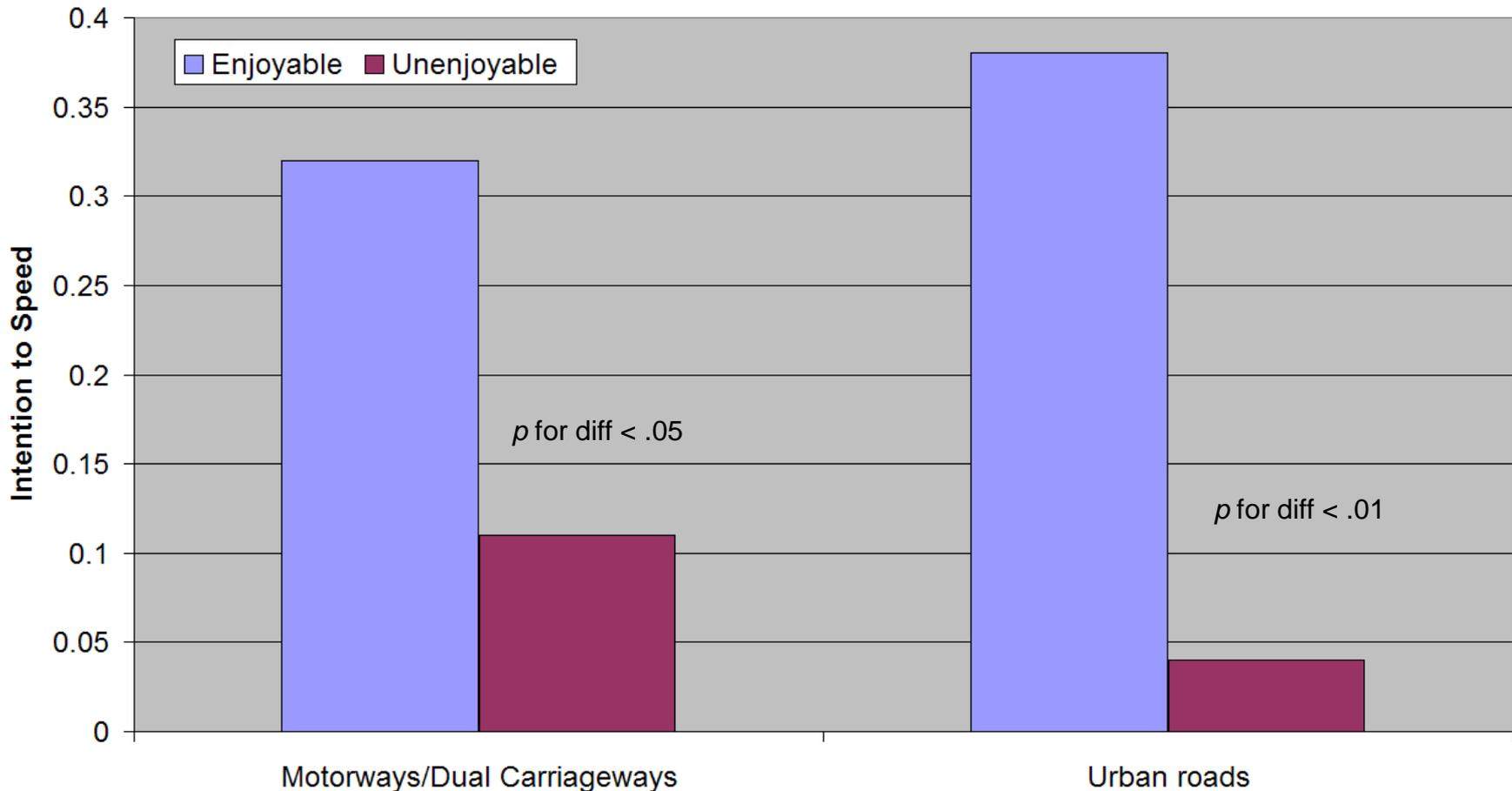
Analyses

- To examine which cognitive variables are important in determining riders decisions to speed, multiple regression analyses conducted
- Allows one to examine the extent to which one variable impacts on riders' decisions to speed after having removed the confounding influence of other variables
- Allows one to be more confident in the results
- Following results are based on these analysis:
 - Show extent to which riders with relatively positive versus negative attitudes (for example) differ in the extent to which they intend to speed, after having controlled for differences in the other variables (e.g. perceived control; perceived group norms)



Results: Effects of Affective Attitude

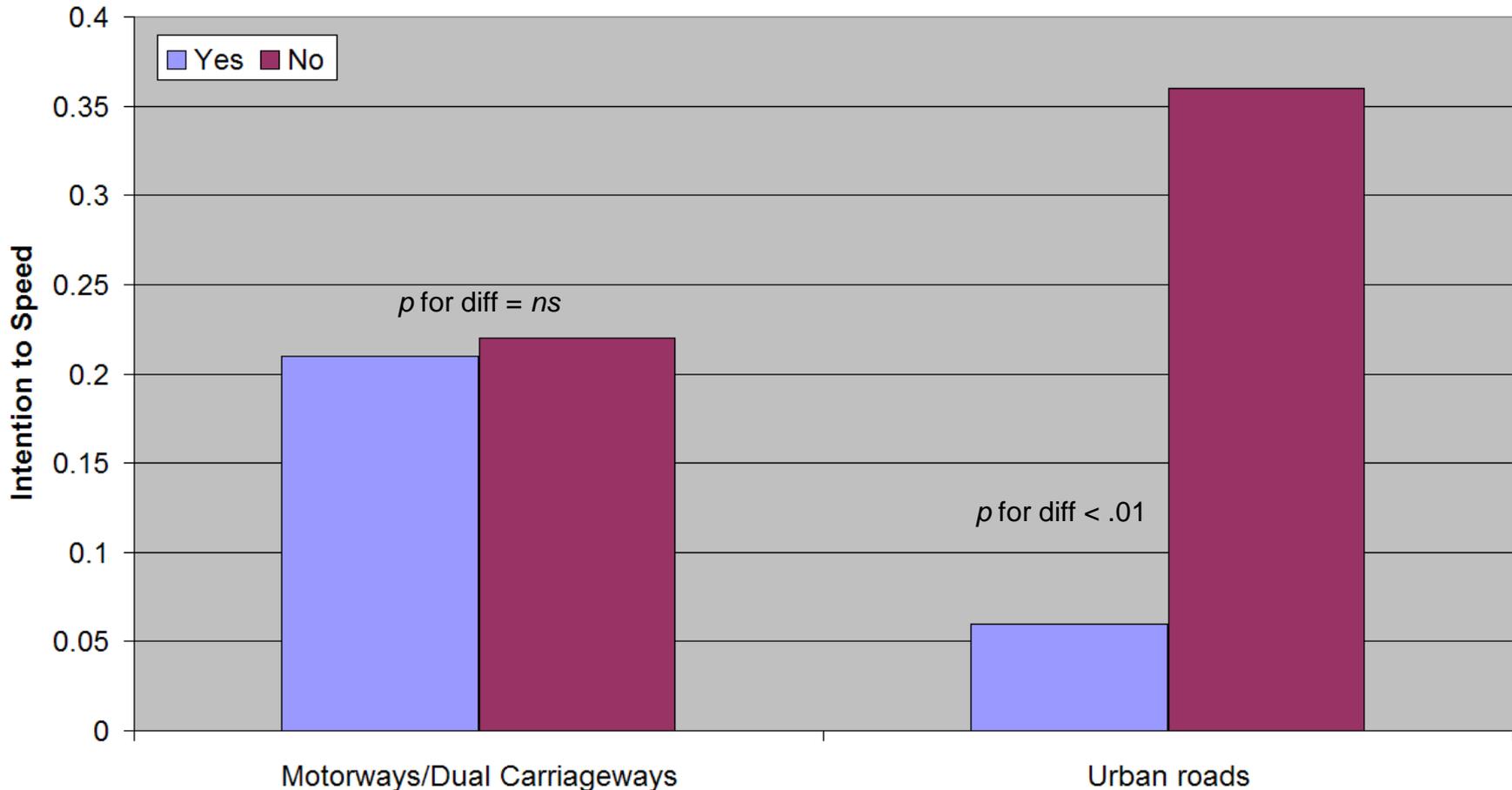
For me, exceeding the speed limit will be:





Results: Effects of Perceived Control

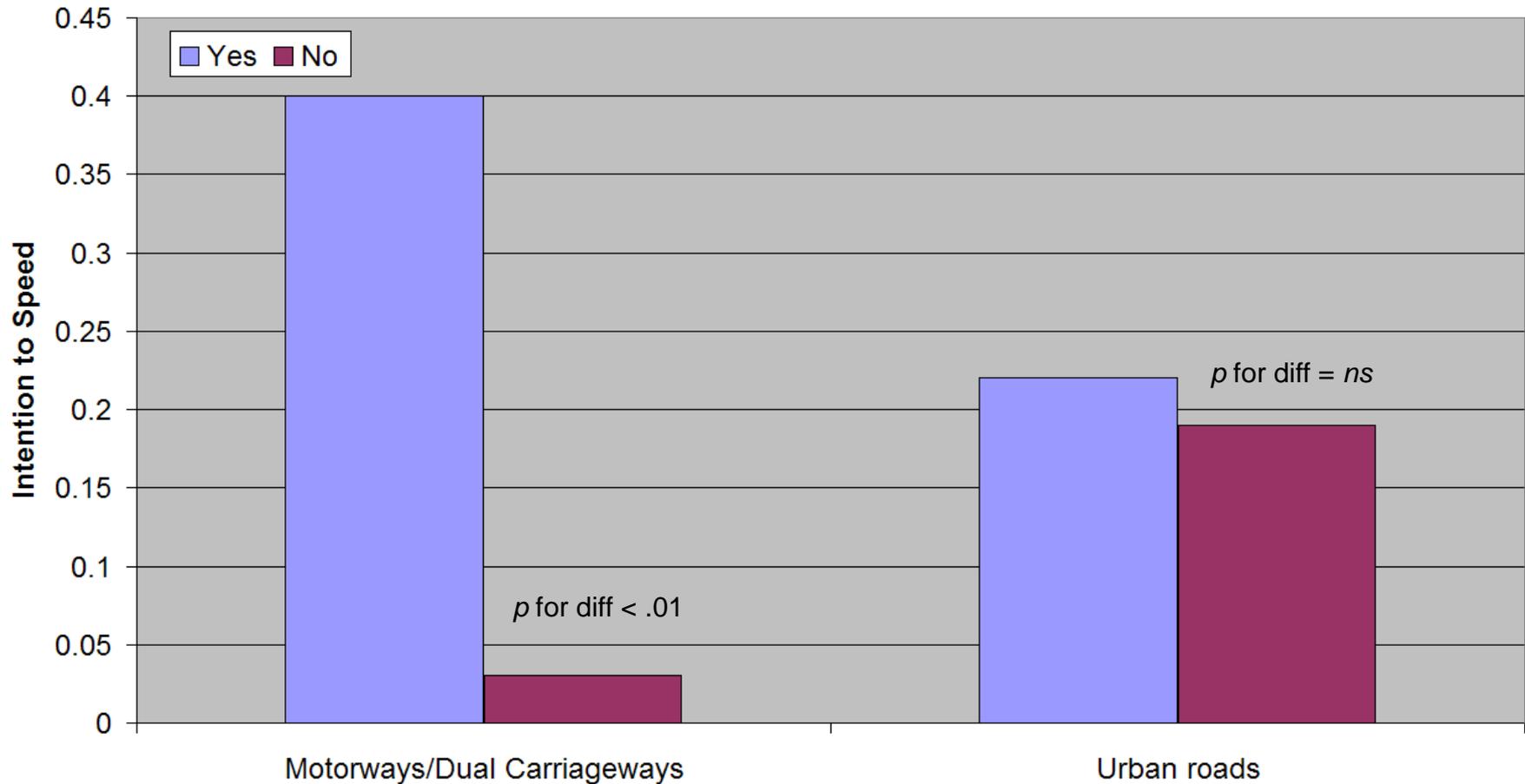
I have personal control over whether or not I exceed the speed limit:





Results: Effects of Self-Identity

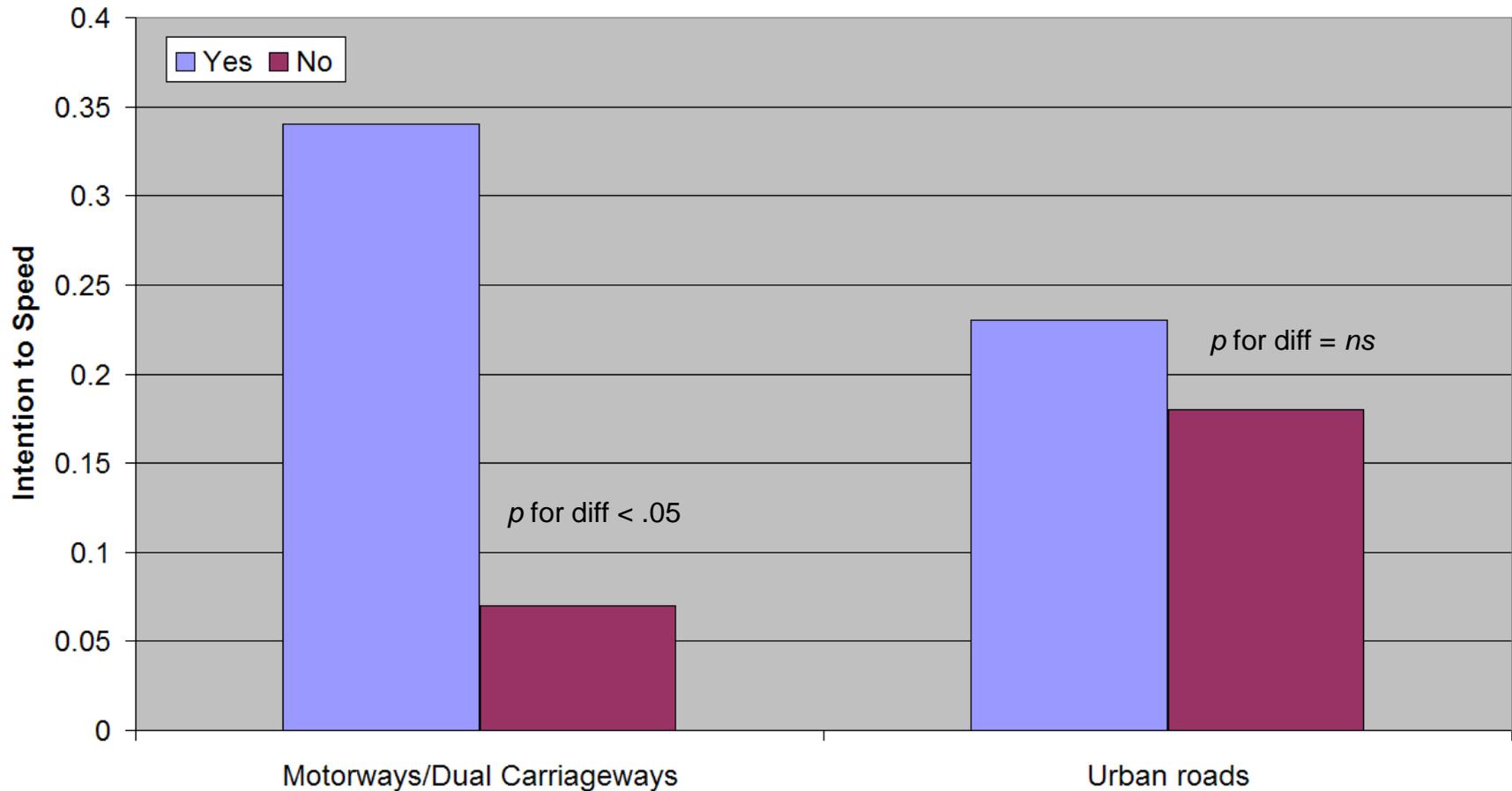
Being a 'speeder' defines 'who I am':





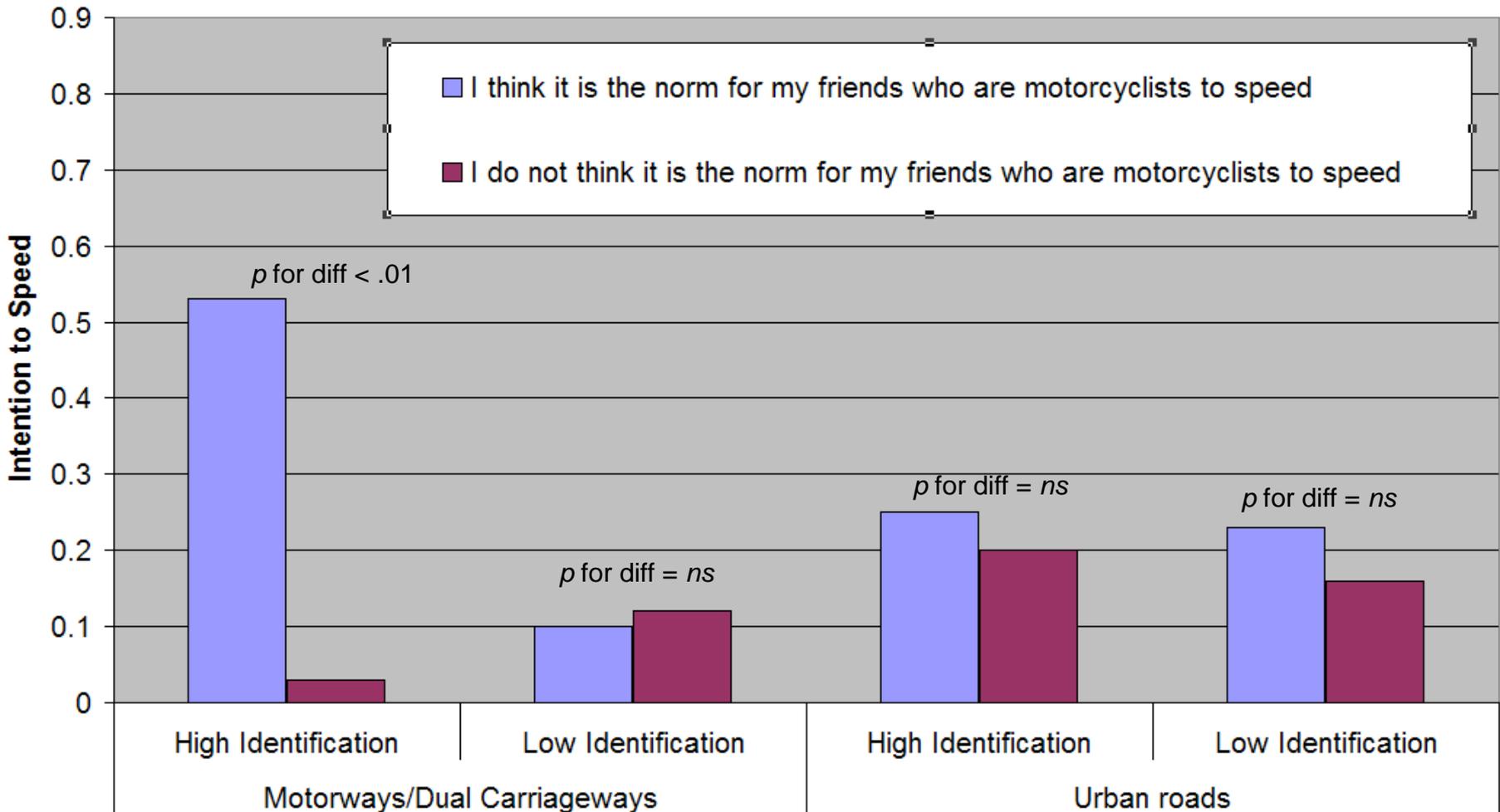
Results: Effects of Perceived Group Norms

I think it is the norm for my friends who are motorcyclists to speed:





Results: Interaction between Perceived Group Norms and Group Identification





Summary and conclusions

- Aim:
 - To identify cognitive variables (types of ‘attitudes’) associated with motorcyclists’ decisions to speed
- Why?
 - Those variables are likely to be the ones that need changing via safety interventions to reduce speeding behaviour



Summary and conclusions

- For 30mph urban roads:
 - Riders more likely to decide to speed if they think that speeding will lead to enjoyment (*affective attitude*)
**Interventions needed to reduce the enjoyment associated with speeding (difficult?)
or
Attenuate the effects of enjoyment motivations for speeding**
 - Riders less likely to decide to speed if they think that whether or not they speed is under their own control (*perceived control*)
Interventions need to increase riders' perception that they themselves have control over their behaviour
 - Extent to which riders think that being a speeder is an important part of who they are as a person (*self-identity*) and the extent to which they think that it is the norm for their group of friends to speed (*perceived group norm*) has no bearing on their decisions to exceed the speed limit
Implication: not worth while trying to change these variables when designing interventions to reduce speeding behaviour on 30mph roads



Summary and conclusions

- For 70mph roads (motorways/fast dual carriageways):
 - Riders more likely to decide to speed if they think that speeding will lead to enjoyment (affective attitude)
 - Riders more likely to decide to speed if they think that being ‘a speeder’ is an important part of their self-concept (i.e. defines who they are)

Interventions needed to reduce the enjoyment associated with speeding (difficult?)

or

Attenuate the effects of enjoyment motivations for speeding

Interventions need to reduce the extent to which (some) riders identify with the ‘speeder’ stereotype / increase the extent to which they identify with more safety orientated roles (e.g. ‘a responsible rider’)



Summary and conclusions

- For 70mph roads (motorways/fast dual carriageways):
 - Riders more likely to decide to speed if they think that it is the norm for their group of friends to speed, so long as being part of that group is an important part of their self-concept (i.e. defines who they are)

Interventions need to reduce the extent to which these riders think that speeding is the norm for their group of friends (difficult if perceptions are accurate?)

or

Reduce the extent to which these riders identify with their group of friends (promote identification with other groups for which speeding is not the norm)

- Extent to which riders think that their behaviour is under their control has no bearing on their decisions to speed

Implication: not worth while trying to increase riders' perception that they themselves have control over whether or not they speed on 70mph roads



Summary and conclusions

- Overall, findings indicate that:
 - Different cognitions (types of ‘attitudes’) determine motorcyclists’ decisions to speed on different road types (30mph urban versus 70mph roads)
- Therefore:
 - Safety interventions need to be carefully targeted
 - i.e. need to take into account which variables are important determinants of speeding for different types of road



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Thanks for Listening

ANY QUESTIONS?

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