

# Cellphone use while driving

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A BEHAVIORAL ECONOMIC PERSPECTIVE



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PHOTO: [WWW.GODTFORBEREDT.NO](http://WWW.GODTFORBEREDT.NO)

*Have you ever been driving a car, received a text message and decided that you will wait to read it until you have arrived at your destination? Suddenly you sit there with your cellphone in your hand even if you told yourself that you should resist and not open it this time.*

*Or have you ever been driving a car catching yourself not able to remember the last few kilometers you have passed because you were texting?*

# Behavioral economy = economy + psychology

→ A method for studying behavioral choices with the aim of establishing the degree of impulsiveness and to assess the rate at which the value of one choice decreases relatively to other choices (Atchley & Warden. 2012).

**Explains why we do things we should not do and why we don't do things we should do**



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# A behavioral perspective on cellphone use while driving

From a behavioral economic perspective, TWD involves a trade-off between immediate and delayed outcomes, and it is showed behaviorally as a preference for smaller immediate rewards over larger delayed rewards.

In other words, choosing a short text message while driving over a longer conversation sometime later when not driving (Hayashi et al. 2015).



<https://www.npr.org/>



# A behavioral perspective on cellphone use while driving

When a person selects the smaller immediate payoff over the later and larger benefits, we may say that the person (e.g., driver) shows impulsive behavior. Oppositely, a person who chooses the delayed larger reward and thereby resists the smaller immediate reward (e.g., text now and not wait until destination) is said to show self-control (Pierce & Cheney, 2013).

Delay discounting can be defined as the tendency to devalue temporally distant rewards or punishments, even though they may greatly outbalance the immediate benefit of our choices (Madden & Bickel, 2010).

**= Answering the phone while driving instead of later**

# Cellphone use while driving

Sending and receiving a text message removes the driver's eyes from the road for an average of 4.6 seconds (NHTSA).

40 km/t = 11,1 M/s → **51 meter**

60 km/t = 16,6 m/s → **76 meter**

80 km/t = 22.2 m/s → **102 meter**

When a driver glances longer than 1 second away from the road, the risk of an accident increases remarkably.

2 seconds and more, the driver has a 5.5 fold increased risk of a crash.



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Cellphone use while driving - a behavioral economic perspective





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Cellphone use while driving - a behavioral economic perspective

Survey: 189 respondents

## Demography

- Gender
- Age
- Years of driving
- Education

## Frequency:

How many days (during past 30 days) they had:

1. Initiated
  2. Read
  3. Replied
- to a text message

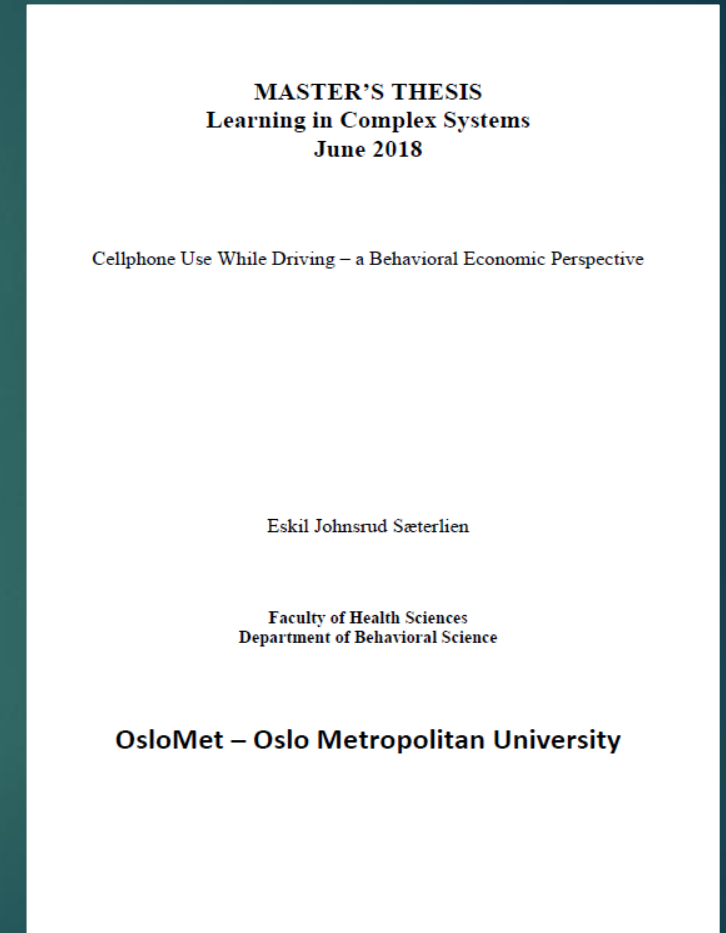
## Driving behavior

- Frequency seat belt as (1) driver and (2) passenger.
- The quality of their driving
- Most likely to (1) call and (2) text while driving

## Perceived risk

To what degree certain distracted driving behaviors is associated with risk:

- Texting
- Talking
- Social media
- eating/drinking
- reading news online
- adjusting radio/CD





# Master`s thesis

## Delay Discounting Text Task (DDTT)

Aim: capture the impact of how the information received affects probability of CUWD.

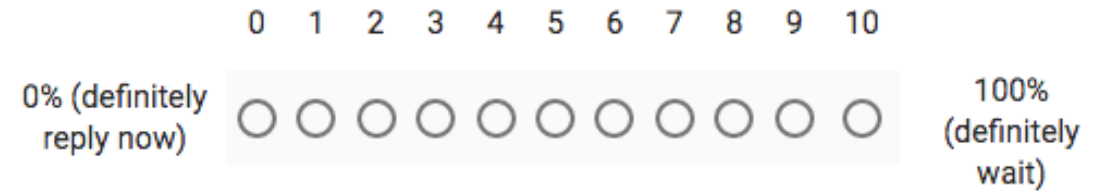
Participants rated likelihood of waiting across 6 delays:

- 30 sec
- 3 min
- 15 min
- 30 min
- 1 hour
- 2 hours

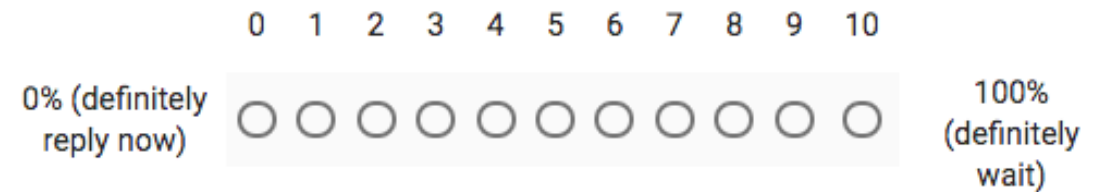
2 conditions:

- Hi, how are you?
- Text med asap

Imagine that someone close to you or an acquaintance has just sent a text message saying "Hi, how are you?" while you are driving. You will arrive at your destination in 3 minutes. Please rate how likely you are to wait the 3 minutes to respond. \*



Imagine that someone close to you or an acquaintance has just sent a text message saying "Text me asap" while you are driving. You will arrive at your destination in 3 minutes. Please rate how likely you are to wait the 3 minutes to respond. \*



# Master`s thesis

## Delay Discounting Call Task (DDCT)

*How probability of CUWD changes as a function of delay until destination*

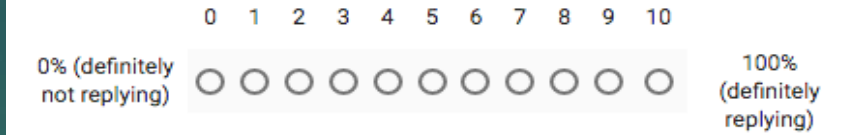
Participants rated likelihood of responding across 6 delays:

- 30 sec
- 3 min
- 15 min
- 30 min
- 1 hour
- 2 hours

4 conditions:

- Alone – known caller
- Alone – unknown caller
- Passengers – known caller
- Passengers – unknown caller

Imagine that someone close to you or an acquaintance is calling you while you are driving. You have no passengers, no handsfree but you will arrive at your destination in 30 minutes. Please rate how likely you are to reply the call. \*



Imagine that you receive an incoming call from a unknown number while you are driving. You have no passengers, no handsfree but you will arrive at your destination in 30 minutes. Please rate how likely you are to reply the call. \*



Imagine that someone close to you or an acquaintance is calling you while you are driving. You have passenger(s), no handsfree but you will arrive at your destination in 30 minutes. Please rate how likely you are to reply the call. \*



Imagine that you receive an incoming call from a unknown number while you are driving. You have passenger(s), no handsfree but you will arrive at your destination in 30 minutes. Please rate how likely you are to reply the call. \*



# Self-perceived cause of CUWD

- I get satisfied
- I can not resist
- I am cellphone dependent
- I only use it to control the music
- Boredom
- Must have something to do
- I am using the phone if I receive a message or an incoming call
- If I get a message I usually only read it and then answer it later
- I never use the phone while driving



# Results

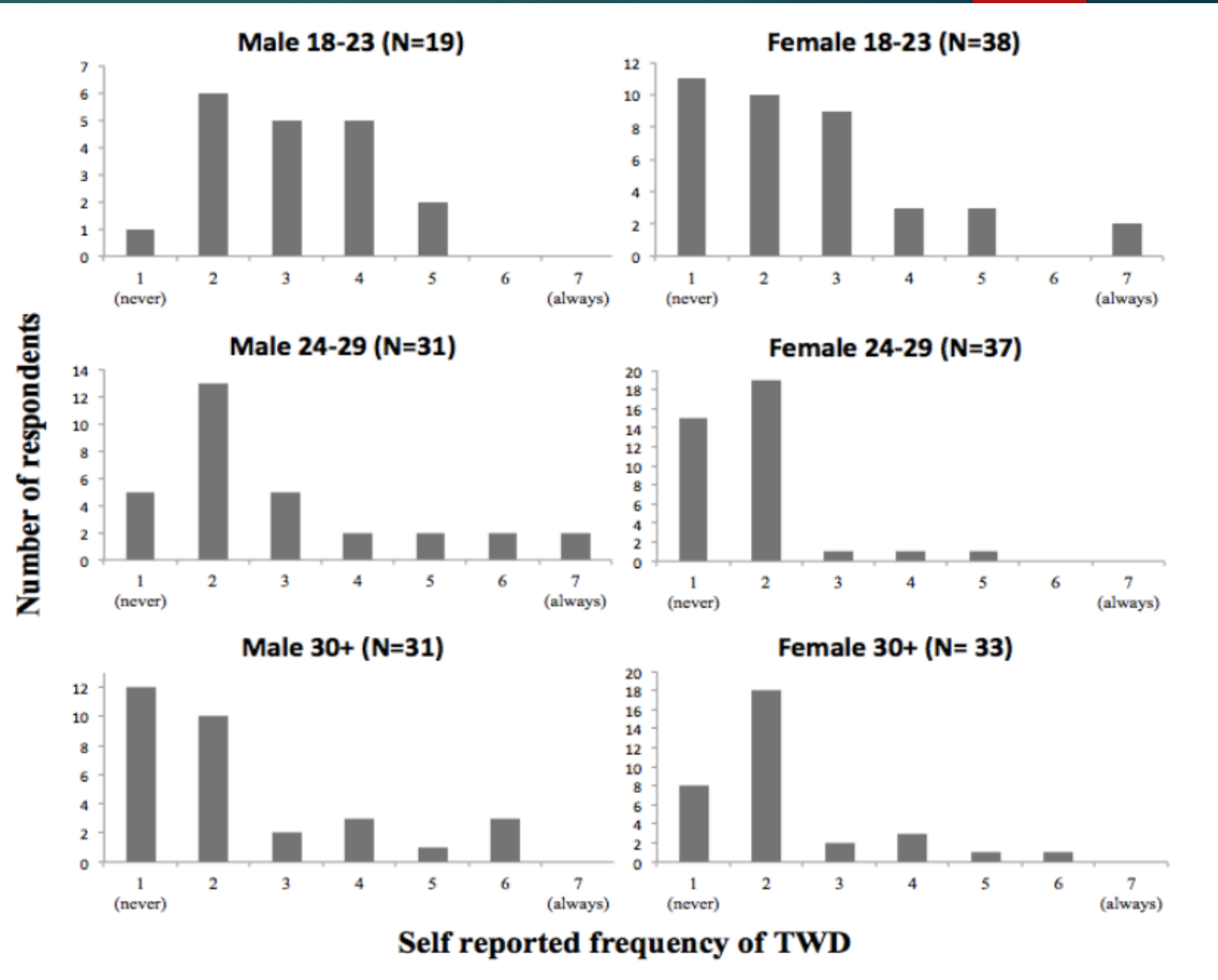
189 participants

- 108 (57%) females
- 81 (43) males

- Mean age 29,3 years

- 96% (182/189) reported they always wear a seatbelt while driving.

- 94% (178/189) as a passenger

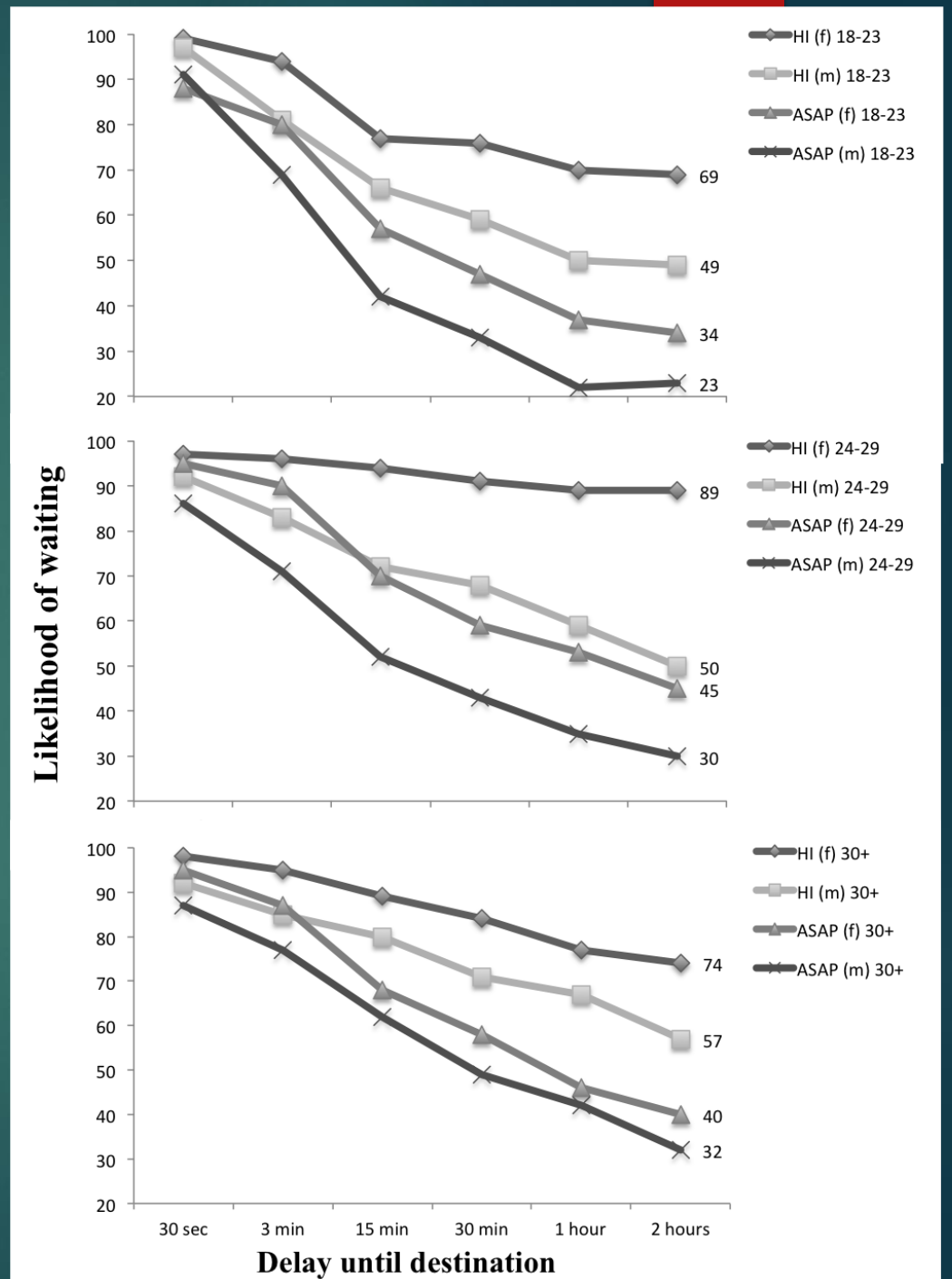
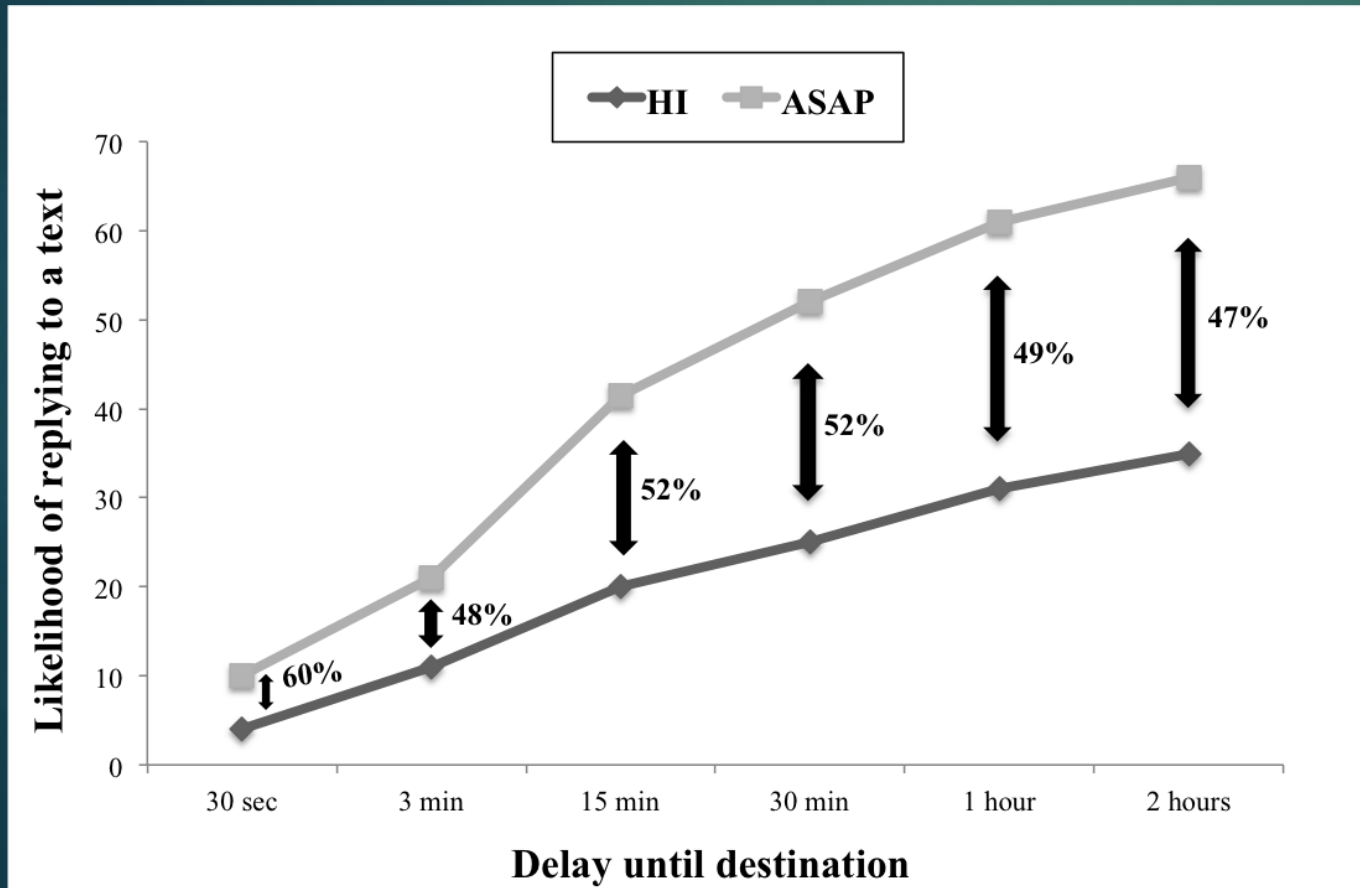


# Results

- On the 7-point scale 52 (27.5%) of the participants reported they never text while driving.
- Based on the self-reported numbers of days initiating, reading, and replying to a text only 33 (17.5%) of the participants reported no TWD during the last 30 days.
- In other words, 156 (82.5%) of the drivers reported that they had been either initiating, reading or replying to a text message while driving more than 1 day during the last 30 days

# Delay Discounting Text Task

*How probability of CUWD changes as a function of delay until destination*

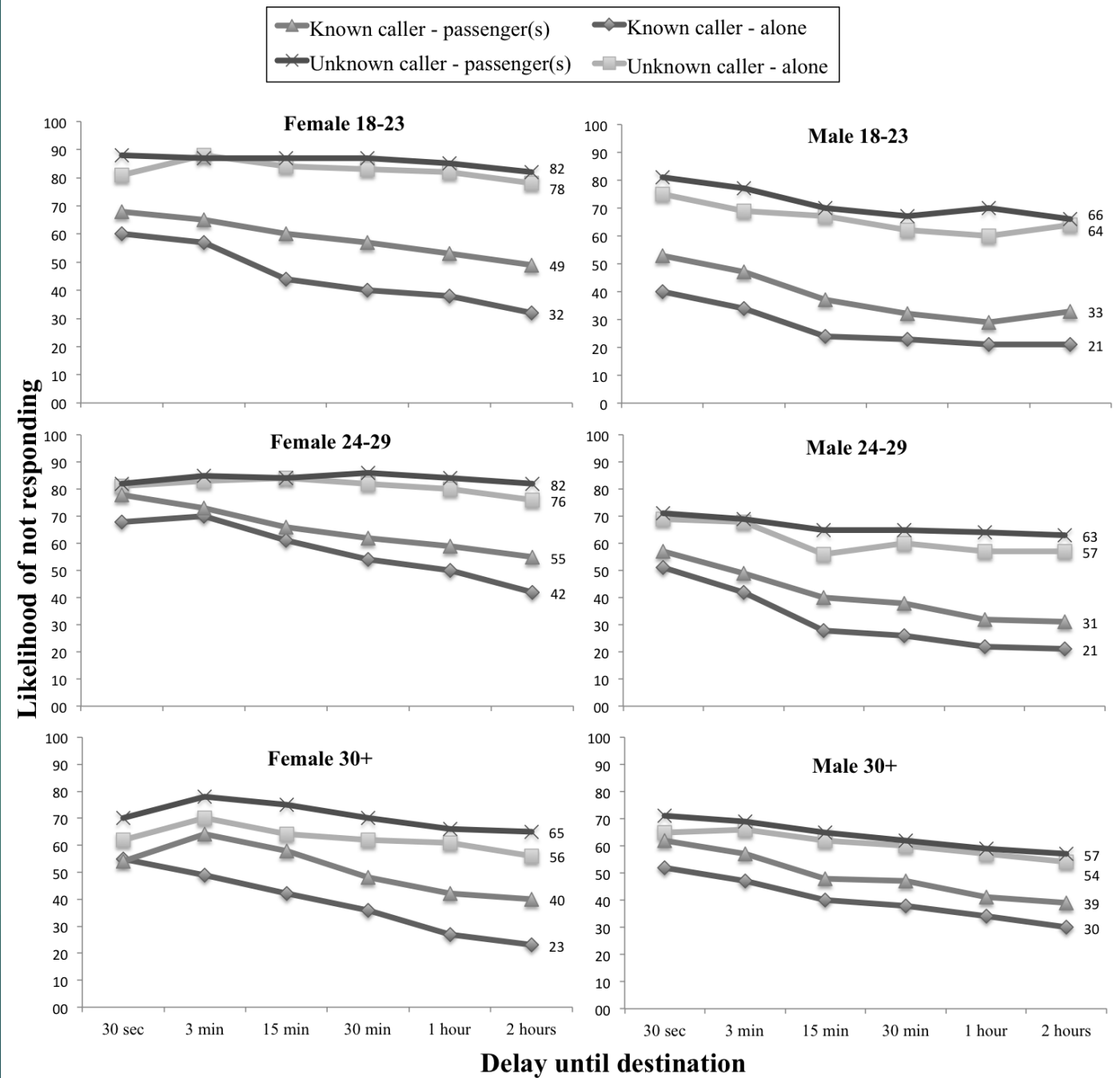




# Delay Discounting Call Task

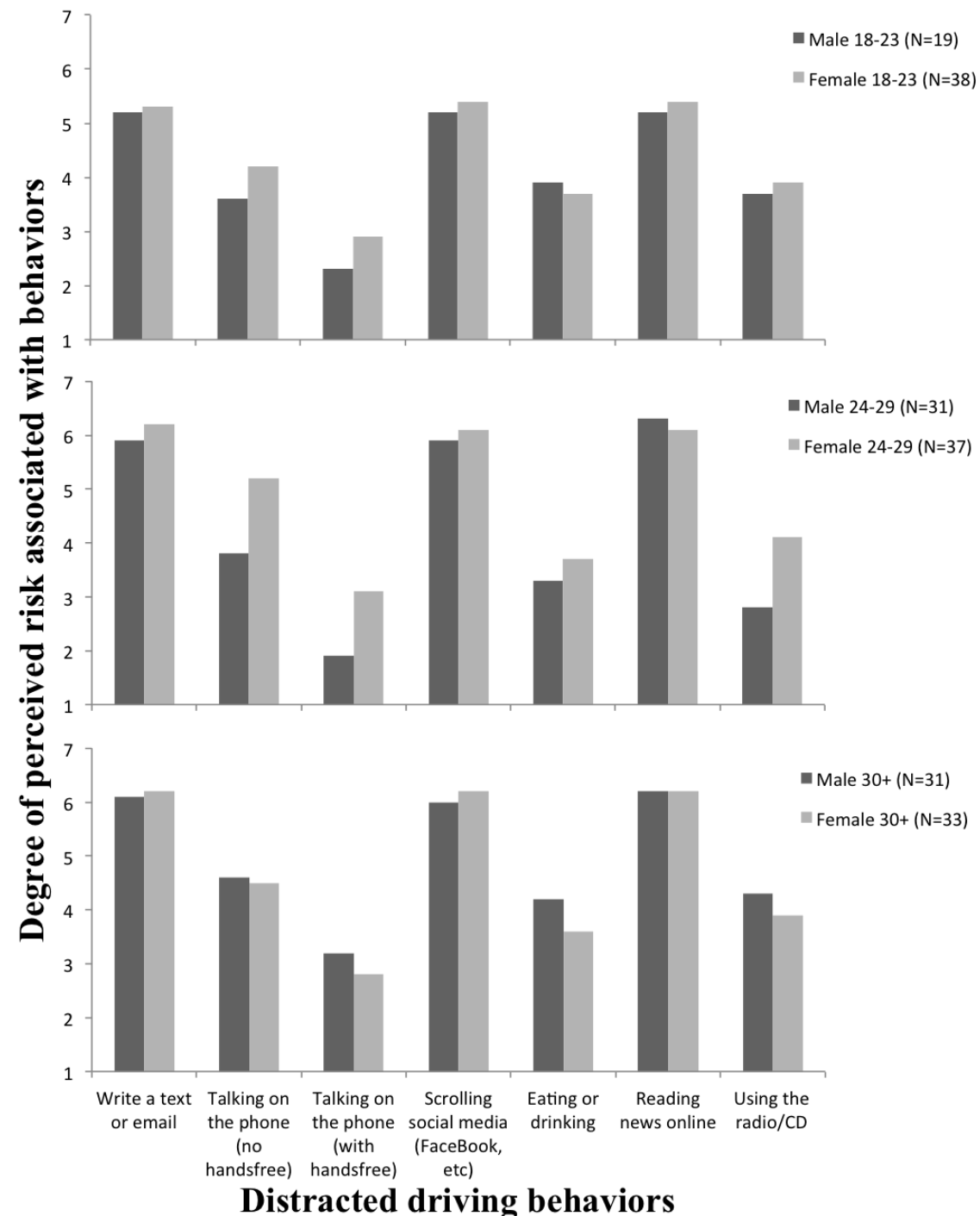
The figure shows how *probability of not replying to phone calls decreases as a function of delay until destination*

- Male 18-23: average 73% probability of responding to a known caller when driving alone.



# Self-percieved cause of CUWD and risk associated with different behaviors

Cause of CUWD	Women	Men
I satisfy my need	1	4
I can not resist	7	6
I am cellphone dependent	0	2
I am using the phone to play music	24	1
Boredom	2	6
Must have something to do	3	0
Using the phone if I receive a message or an incoming call	21	36
If I get a message while driving, I usually read it immediately and respond later	29	19
I never use the cellphone while driving	10	1
Other	11	6
<b>Total</b>	<b>108</b>	<b>81</b>









# Distracted driving



## Discussion

Cellphones are making a huge impact in our everyday life. The dependency of our phone in safer environments (home, on the bus, metro, work, etc) follows us even in situations associated with high risk. Example: people risking their lives trying to take the perfect selfie

Because we are not getting pulled over (ticket) every time we are using our phone while driving, our behavior (using the phone) is more likely to be upheld, even increased because it is reinforcing.

To reduce undesired behavior (CUWD), the value of the cellphone as a reinforcer has to be reduced.

**When it comes to the environment outside the car (roads, turns, traffic signs etc) it is about making it harder for the driver to do wrong.**

***But, when it comes to what happens inside the car (choice of speed, cellphone use, alcohol, drugs etc) it is about making it easier to do right.***



# What does that mean?

Activities other than using the phone (= the driving itself) has to overcome the phone/food/drink in *value*.

= *not using the phone has to have a higher value than using it*

We need to supplement rules, regulations and sanctions with something else, to change peoples (drivers) behavior. In this case, to prevent them from using ther phone while driving.



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# Thank you!

Questions?  
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