Evaluating the novel Mask Delay Discounting Task: Concurrent validation with monetary delay discounting and association with self-reported mask use

Matthew J. Dwyer, M.S., Connor A. Burrows, M.A., Schyler Newman, B.A.,

& Bethany R. Raiff, Ph.D.

Rowan University

Background

- Prior to vaccine availability, social distancing practices (including mask wearing) were the best methods available to decrease COVID-19 transmission.

- Several factors have been proposed explain why individuals choose to not wear a mask, however, impulsive choice (defined by how much individuals discount delayed vs. immediate outcomes) has not been evaluated.

- The development of a delay discounting measure of mask-wearing could prove to be useful in investigating the role of impulsive choice on mask-wearing behavior.

Purpose

- To validate the Mask Delay Discounting Task (MDDT) against a monetary-choice discounting task in predicting self-reported mask-wearing in multiple contexts.

Participants

- Recruited over social media between October and November, 2020

- Anonymous self-report survey, compensated with $15

N= 300	
Age (years)	
Mean (Range)	34 (18:77)
Biological Sex	
Male	86 (29%)
Female	214 (71%)
Race	
White	235 (78%)
Black	16 (5%)
Native American/Indian	3 (1%)
Asian	23 (8%)
Native HI/Pacific Island	0
Other	5 (2%)
Ethnicity	
Hispanic/Latinx	21 (7%)
Not Hispanic/Latinx	279 (93%)

Table 1: Participant demographics. Note that participants could indicate more than one racial group identity.

Survey Instruments

Mask-Delay Discounting Task (MDDT)

Imagine you have just entered a grocery store and realize you did not bring a mask. The store does not require you to use a mask, but it is during a relatively busy time and most (but not all) of the other shoppers appear to be wearing them. The store clerk tells you they have disposable masks and offers you the choice to either shop now without wearing one, or wait a specified amount of time until they can get one. Imagine this is the only store available to you and you need to shop for groceries today. Therefore, pretend you do not have the option to leave and return at a later time. Please answer the following questions as if you were in this situation.

The store clerk offers you the choice to either shop now without wearing one, or wait (**time between <1 minute : 15 hours**) until they can get one.

Enter the store now without a mask	Wait (<1 minute to 15 hours) for a mask

Adjusting Amount Monetary-Delay Discounting Task

You will be presented with a series of decision situations relating to different amounts of money. These are hypothetical, but please choose your answer as if you will receive the money in the time frame selected.

Which would you rather have?

$50 Now	$100 in [delay 1 hour to 25 years]

Analysis & Conclusions

- For the model comparison, we averaged self reported mask-wearing across all eight contexts and then constructed two linear models.. A model comparison suggested that MMDDT inflection point was a better predictor of self-reported mask use before ED50 was added from the monetary delay discounting task.

- These results demonstrate the potential for impulsive choice, defined by delay discounting, as a possible influence on mask-wearing and other important public health behavior.

- The MDDT may be a useful tool to facilitate more research in this area to inform policy and intervention development.

Please take our post-attendance survey!
✓ *Feedback and comments on the poster*
✓ *Questions for the author:*
    dwyerm4@rowan.edu

Results

Eating/drinking outdoors	Attending small indoor gathering	Getting an indoor hair-cut	Shopping indoors	Exercising outdoors	Walking down a busy street	Flying on an airplane	Attending large outdoor event
73.44% (35.88)	80.20% (33.86)	82.44% (32.10)	84.99% (29.38)	49.06% (38.79)	71.77% (35.30)	80.09% (35.15)	76.95% (35.93)

Table 2: Mean average (with standard deviation) probability (0:100%) of wearing a mask across eight different contexts.
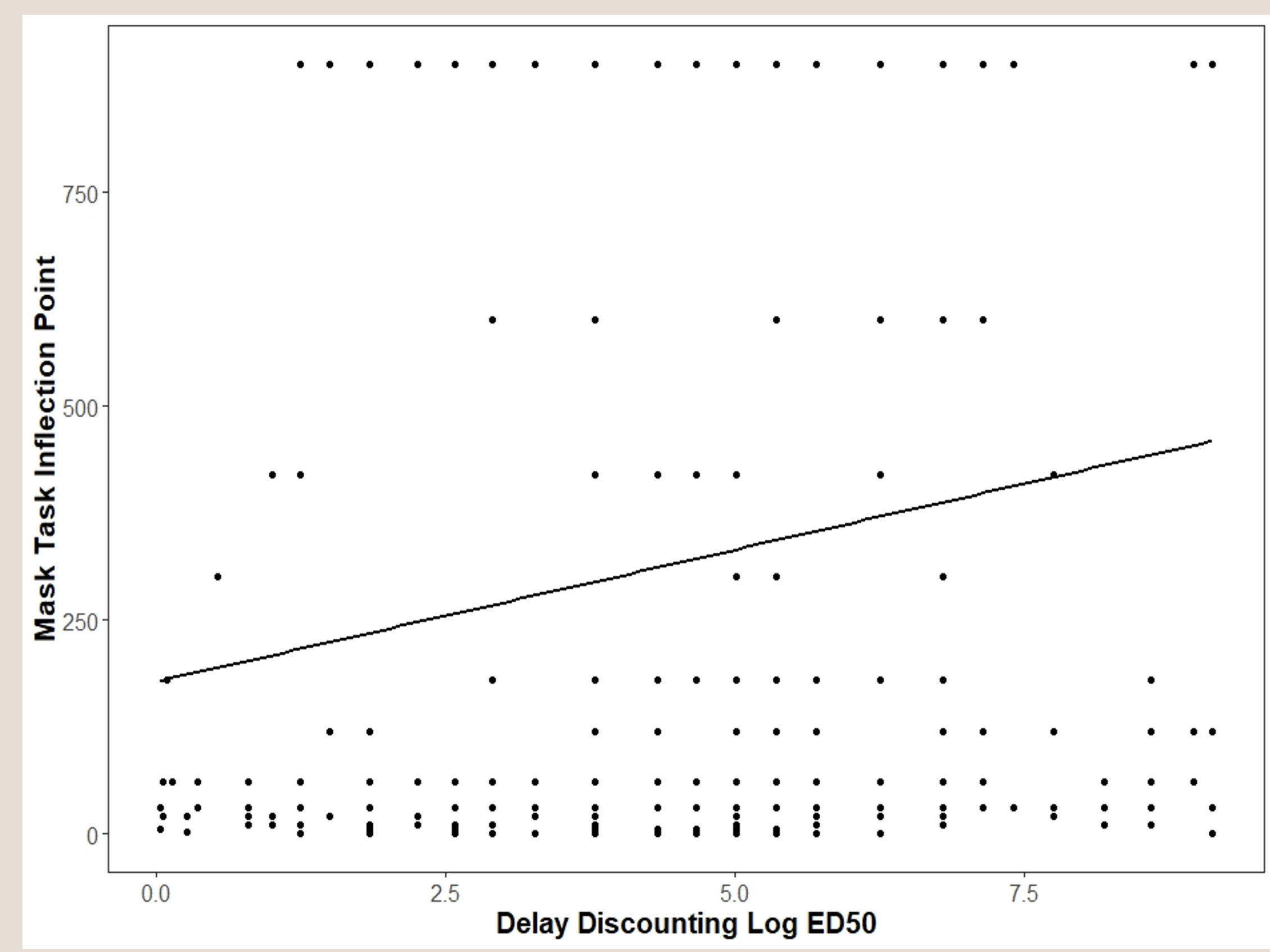

Figure 1: Linear model comparing the relationship between ED50 measured by a delay discounting task and inflection point of the MDDT. There was a significant relationship between by ED50 and inflection point (p = .002).
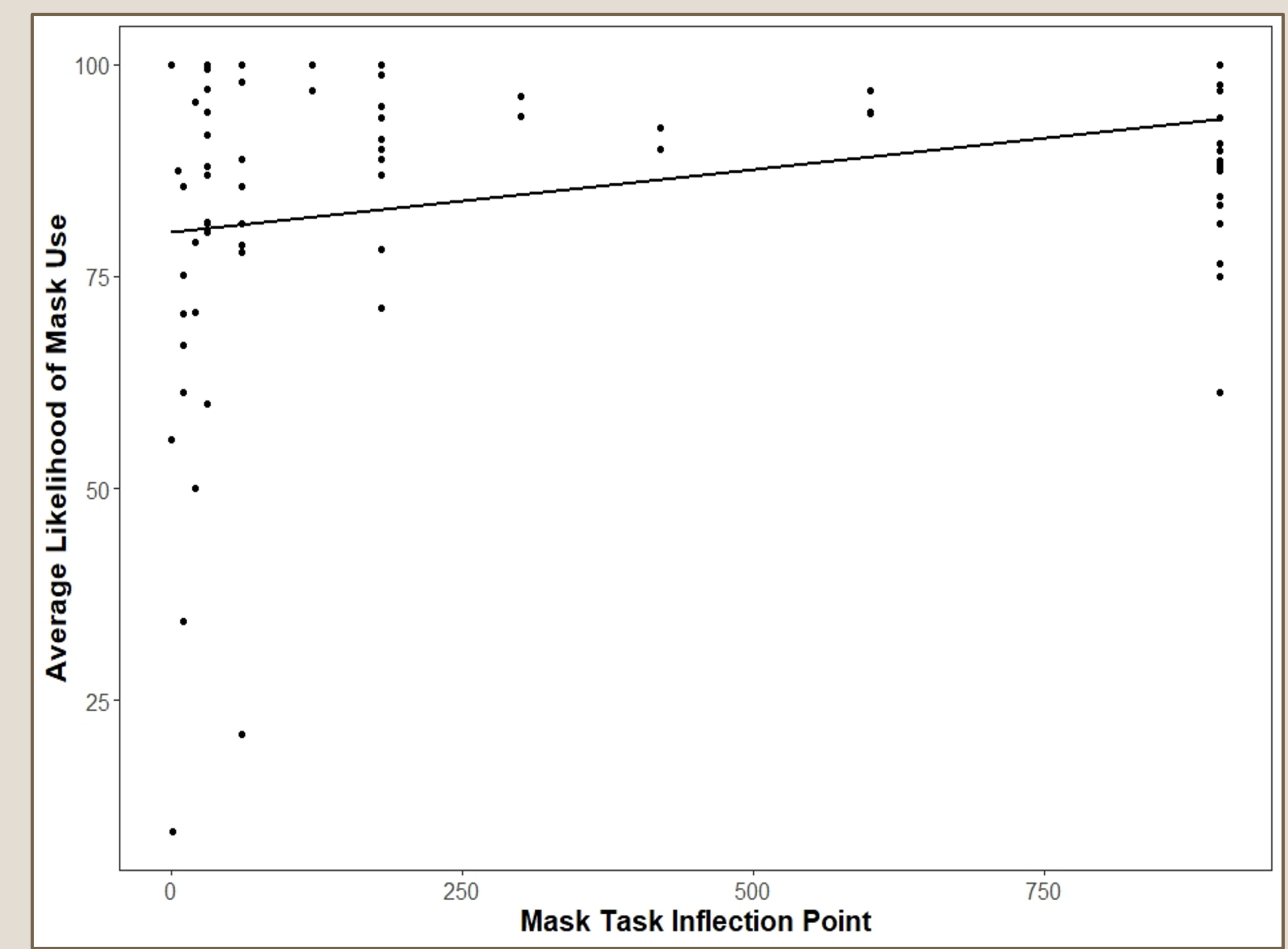

Figure 2: Linear model comparing the inflection point on the MDDT and the average likelihood of wearing a mask across eight different contexts. The relationship between inflection and self-reported likelihood of mask wearing was significant (p = 0.002)