

# Risky Decision-Making in Alzheimer's Disease Descendants

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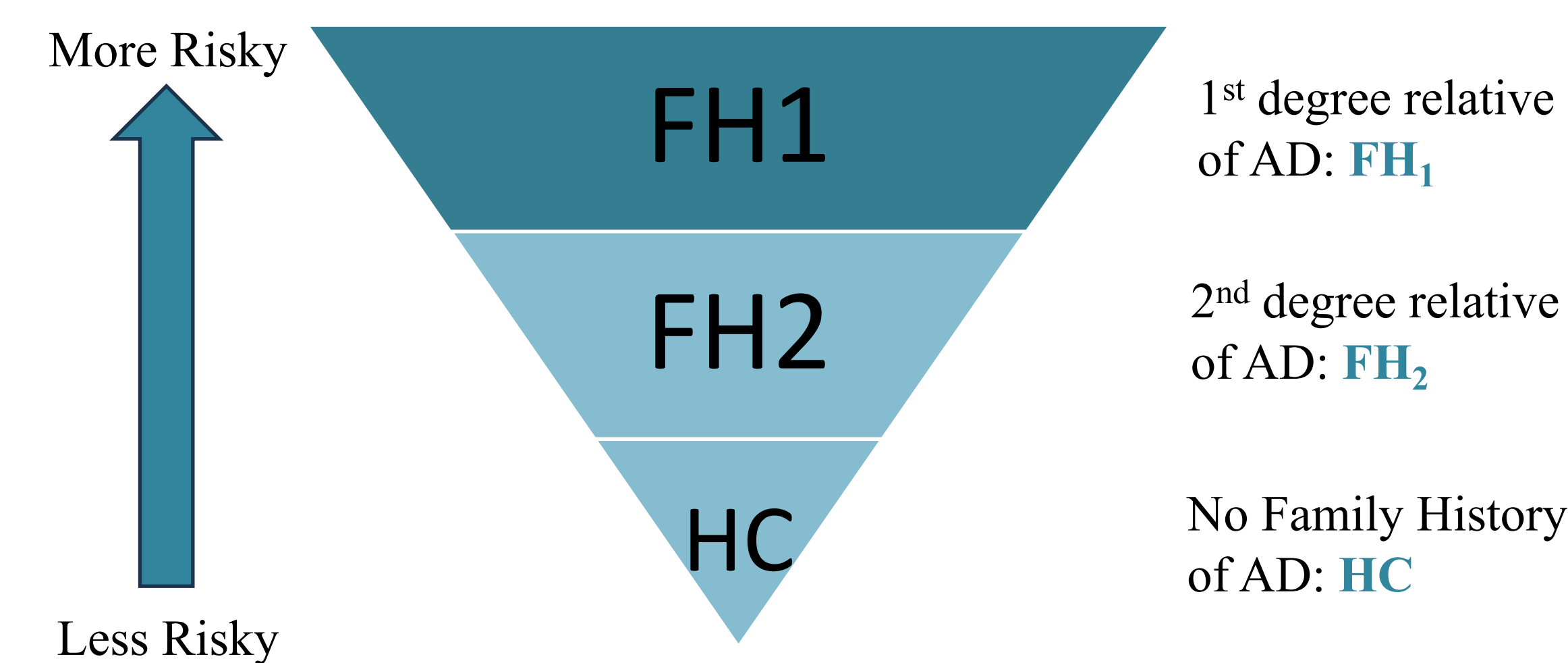


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## Abstract

- Decision-making capacity (DMC) is one of the most severe impairments of Alzheimer's Disease (AD).
- By studying people who are genetically at-risk of developing AD via family inheritance, researchers may be able to detect early differences in DMC as a possible result of AD.
- Expect to find that family history of AD will continue variances between scores.

## Hypothesis



## Background

- Two types of decision-making impacted by AD: decisions-under risk and decisions under ambiguity.
- Having a 1<sup>st</sup> or 2<sup>nd</sup> degree relative with AD increases the risk of developing AD 4x more compared to patients with no family history of AD.
- 1.7-3.6 times more likely to have inherited AD from biological mothers than fathers.
- Children of those with AD perform more poorly on cognitive tasks.
- Episodic Memory declines up to 7 years prior to an AD diagnosis.

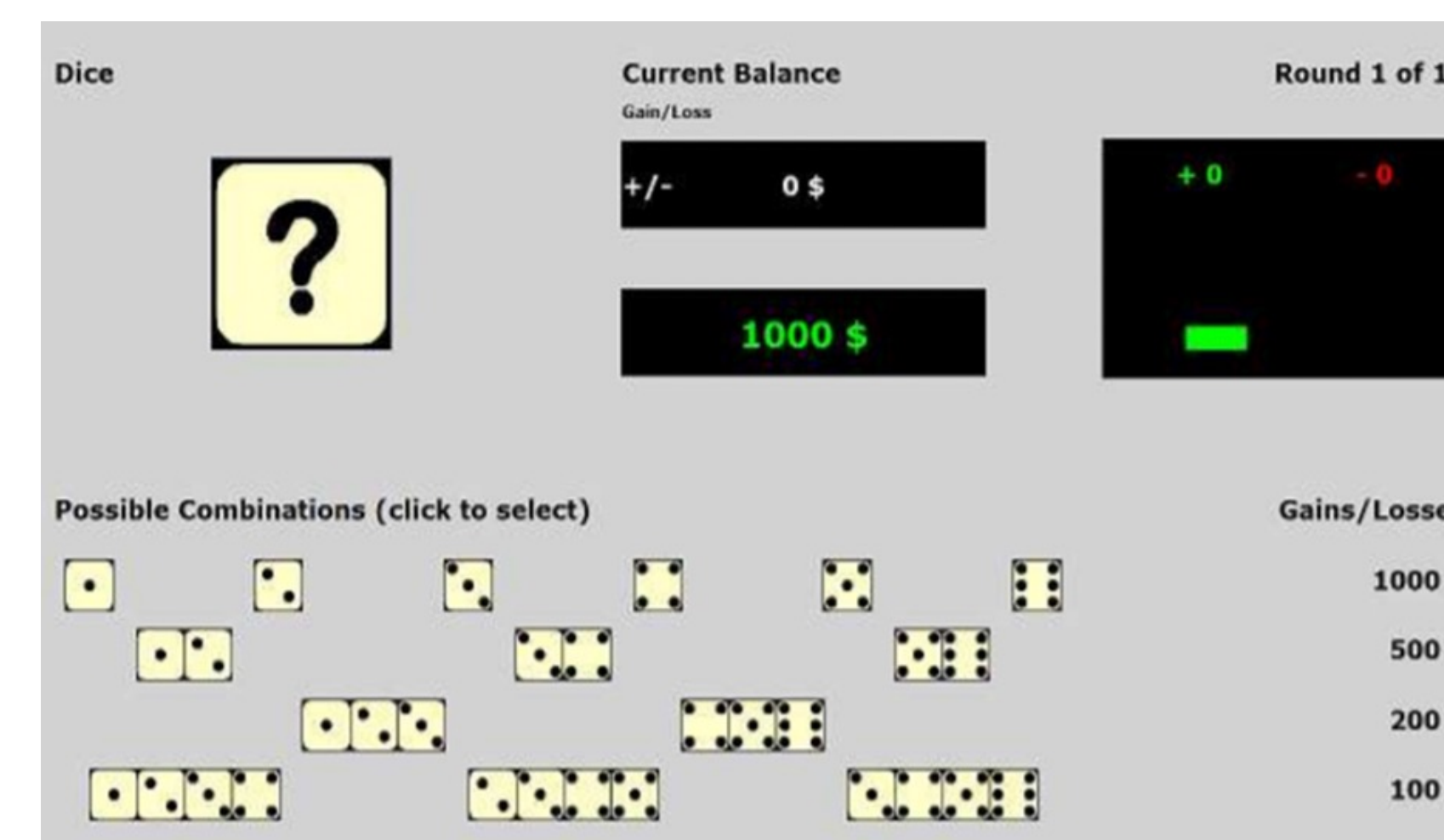
## Method

**Participants:** 60 middle-aged adults from Tuscaloosa, AL

**Design:** One way, three group design: FM<sub>1</sub>, FH<sub>2</sub>, HC

### Game of Dice Task

- Maximize your profits
- Select numbers you expect the dice to land on
- Choose one, two, three, or four numbers
- Different gains/losses associated with combinations
- Lower probabilities= higher gain/loss value
- Higher probabilities= lower gain/loss value



## Results

- Results showed that individuals with a family history of AD had a higher mean risk score (M=12.41, SD=5.45[AG1]) than individuals without a family history of AD (M=9.54, SD=5.59).
- There was a small but insignificant increase in risky decision-making among individuals with family history of AD; an effect may be present with a larger sample size.
- The relationship between maternal AD family history and increased risky decision-making was significant (F(2,58)=3.312, p=.043) and supports the hypothesis that participants with maternal AD histories would choose riskier decisions on the GDT

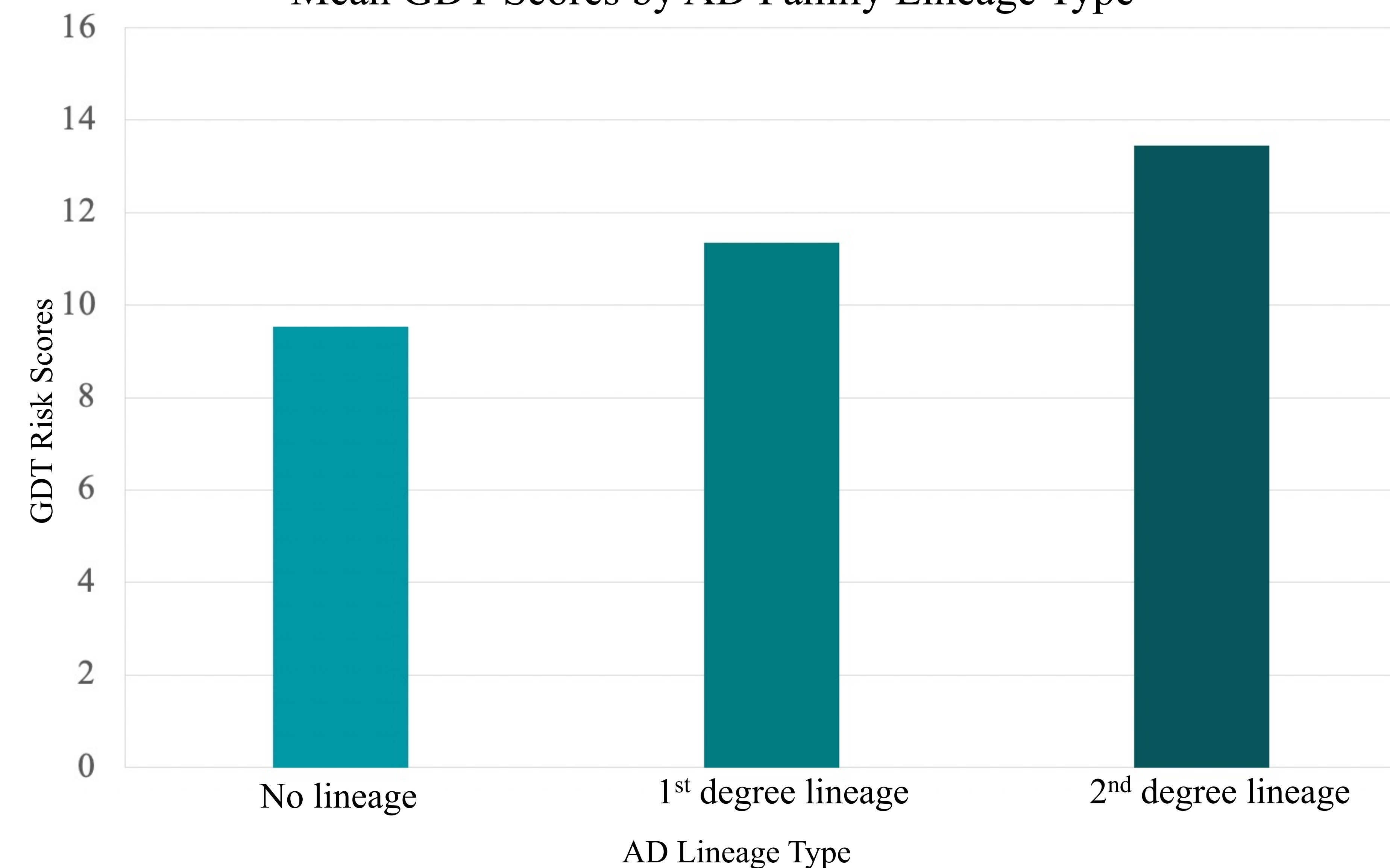
## Conclusions

- Those with AD family history tended to choose risky decisions on the GDT more frequently than those without AD family history, indicating a decrease in decision-making capacity under risk during middle adulthood for those with AD family histories.
- GDT risk scores increased from no lineage to 1<sup>st</sup> degree relative to 2<sup>nd</sup> degree relative so the hypothesis pertaining to lineage was partially supported in this sample.
- Those with a maternal AD family history chose riskier decisions than those with paternal AD family history or no AD family history so the hypothesis pertaining to AD gender and risk scores was correct.

## Future Directions

- Results need to be replicated before strong conclusions can be drawn between paternal history of AD and maternal history of AD in relation to risky decision-making.
- Pursue other measures of executive function to compare with GDT score results.
- Use a larger and more geographically diverse sample size.

Mean GDT Scores by AD Family Lineage Type



## References

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