

# Behavioral Health Correlates of Speculative Trading in Young Adults

Frank Song  
Joey Lambuth

UW Department of Psychology &  
Center for the Study of Health and Risk Behaviors

[fs1@uw.edu](mailto:fs1@uw.edu)



# Disclosure

The authors *do not* have any financial interest, arrangement, or affiliation with companies.

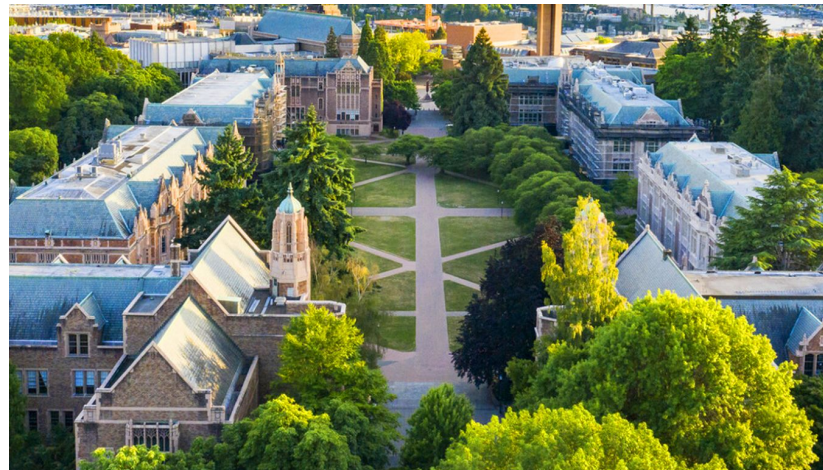
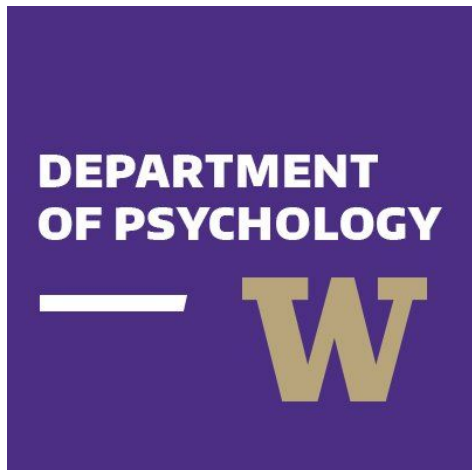
We have no conflicts of interest to disclose.

# Funding Acknowledgment



The research projects covered in this presentation are funded by grants from **Evergreen Council on Problem Gambling** and **University of Washington Royalty Research Fund**. Their contents do not represent the official views of Evergreen Council on Problem Gambling or the University of Washington.

# Research Team

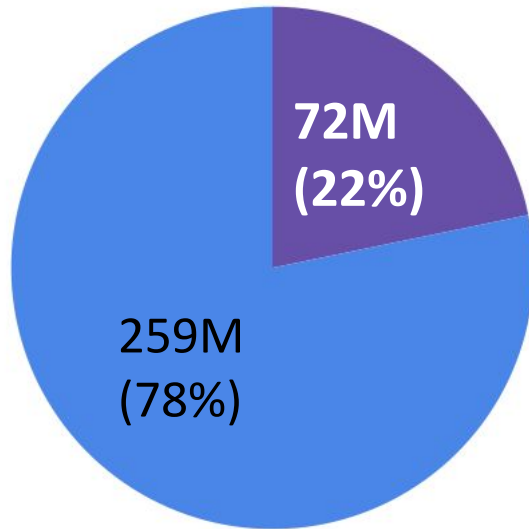


**Frank Song, M.S.**  
**Joey Lambuth**

Scott Graupensperger, Ph.D.  
Ty Lostutter, Ph.D.  
Mary Larimer, Ph.D.

# Young Adults: Definition

US Population (2020)

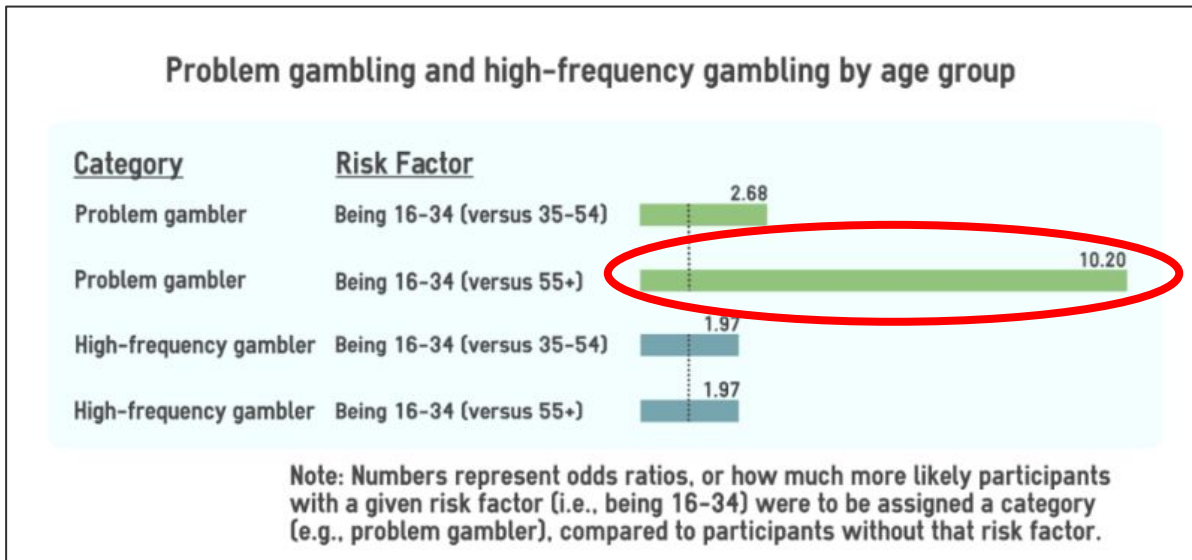


● Young Adults (18-29) ● Other Age Groups

- Aged 18 to 29
- 72M young adults live in the US, 1.8B+ worldwide
- Making up 22% of total United States population

# Young Adults have 2-5x Higher Prevalence of Problem Gambling than Older Adults

## Australia (women) (2018)



## UK (men) (2019)



Source: McCarthy, Simone, et al. "Women's gambling behaviour, product preferences, and perceptions of product harm: Differences by age and gambling risk status." Harm Reduction Journal 15 (2018): 1-12; Source: National Audit Office, Gambling regulation: problem gambling and protecting vulnerable people (28 February 2020) p 18:  
<https://www.nao.org.uk/wp-content/uploads/2020/02/Gambling-regulation-problem-gambling-and-protecting-vulnerable-people.pdf>

# Public Health Significance of Young Adult Problem Gambling

- Early adulthood is a critical period for onset of addictive and mental disorders
- Earlier onset of gambling behaviors is related to greater gambling involvement throughout adulthood



Sources: Burge, A. N., Pietrzak, R. H., Molina, C. A., & Petry, N. M. (2004). Age of gambling initiation and severity of gambling and health problems among older adult problem gamblers. *Psychiatric services*, 55(12), 1437-1439; Floros, G. D. (2018). Gambling disorder in adolescents: prevalence, new developments, and treatment challenges. *Adolescent health, medicine and therapeutics*, 43-51; Grant, J. E., & Chamberlain, S. R. (2020). Gambling and substance use: Comorbidity and treatment implications. *Progress in Neuro-Psychopharmacology and Biological Psychiatry*, 99, 109852; Sussman, S., & Arnett, J. J. (2014). Emerging adulthood: developmental period facilitative of the addictions. *Evaluation & the health professions*, 37(2), 147-155.

# Why are Young Adults Even More Vulnerable to Problem Gambling Today?

- Unique gambling-related risks and harms given how highly intertwined young adults are with **mobile** technologies
- Novel forms of gambling (sports betting, online gambling) are more **accessible** than ever and marketed as **skill** based games



Sources: Kolandai-Matchett, K., & Wenden Abbott, M. (2022). Gaming-gambling convergence: Trends, emerging risks, and legislative responses. *International Journal of Mental Health and Addiction*, 20(4), 2024-2056.

# Sports Betting and Speculative Trading



**BETMGM**  
THE KING OF SPORTSBOOKS

**COMPLETELY FREE**

**\$50**

PLUS

**100% DEPOSIT MATCH  
UP TO \$500**



**robinhood**

**FREE STOCK!**

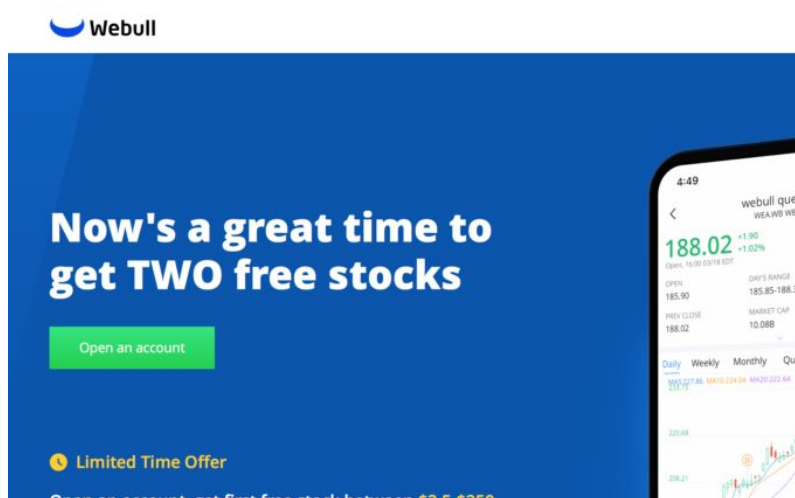


**DRAFT KINGS**  
An Official Sports Betting Partner of the NFL

NEW CUSTOMERS

**BET \$5 TO GET \$200**

**IN FREE BETS INSTANTLY.**



**Webull**

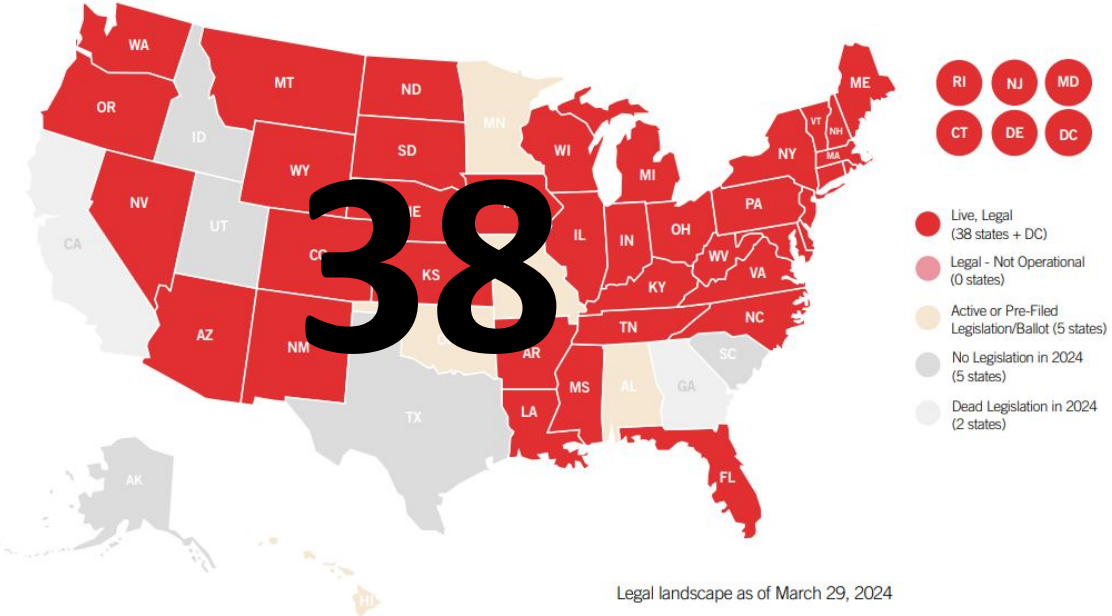
Now's a great time to  
get **TWO** free stocks

Open an account

Limited Time Offer

# Speculative Trading: Availability by state

## U.S. Legal Sports Betting



AmericanGaming.org

## U.S. Stock and Cryptocurrency Trading



Sources: American Gaming Association (2024) <https://www.americangaming.org/research/state-gaming-map/>

# Is speculative trading a type of gambling?

## Pattern Day Trader Rule

*if your account is funded with less than*

**\$25,000**

*you are limited to*

**3** every **5**  
Round Trips Days

**SPEEDTRADER**  
A division of Stock USA Execution Services, Inc.



# Popular media headlines suggest...



BUSINESS

Former Day Trader Warns Others Of The Risk Of Addiction

December 7, 2020 · 5:02 AM ET



**The new middle-class gambling addicts:  
how day trading is ruining lives**

**Los Angeles Times**

MAY 12, 2022

Amid crypto crash, trading can be an addiction

**FINANCIAL TIMES** JUNE 2 2023

**‘There needs to be a health warning’: How  
crypto trading can lead to addiction**

# Not-so-good consequences of speculative trading

**BUSINESS  
INSIDER**


Aug 27, 2023, 5:15 AM PDT

**A turbulent few years for stocks has led to a boom in therapy services for stressed out traders**



**Young trader dies by suicide after thinking he racked up big losses on Robinhood**

PUBLISHED THU, JUN 18 2020-12:01 PM EDT | UPDATED SAT, JUN 20 2020-1:09 AM EDT

Sections 

**The Washington Post**  
*Democracy Dies in Darkness*

Try four weeks free

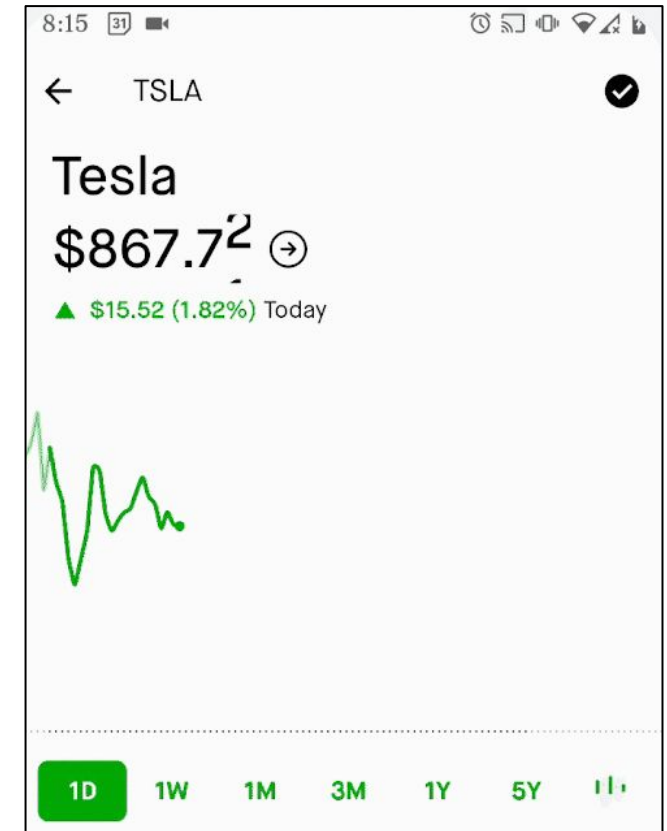
Sign in

## **Insomnia, addiction, depression: The dark side of life trading crypto**

Crypto was going to make them rich. Instead, therapists say, more people became depressed and addicted.

# Emerging research suggests similarities between trading and gambling

- Design similarities between gambling and trading platforms
- Very high likelihood of losses (74-97%)
- Lottery legalization case studies show substitute behaviors



Sources: Newall, P. W., & Weiss-Cohen, L. (2022). The gamblification of investing: how a new generation of investors is being born to lose. *International Journal of Environmental Research and Public Health*, 19(9), 5391; Barber, B. M., Lee, Y. T., Liu, Y. J., & Odean, T. (2009). Just how much do individual investors lose by trading? *The Review of Financial Studies*, 22(2), 609-632.

# Review: Speculative Trading - Mental Health Connection

- Emerging evidence of detrimental personal consequences from speculative trading
  - Substantial financial losses and debt problems
  - Mental and physical health issues such as depression and insomnia



Agnew, M. (2022). The new middle-class gambling addicts: how day trading is ruining lives. *Sunday Times*; Hajric, V. (2022). Day Traders Lost \$1 Billion Trading Options During the Pandemic. *Bloomberg*.; Chang, A. (2022). Amid crypto crash, investors struggle with trading addiction. *Los Angeles Times*; Verma, P. (2022). Depression and addiction are plaguing crypto traders. *The Washington Post*.; Khorram, Y. R. K. (2020). Young trader dies by suicide after thinking he racked up big losses on Robinhood. *CNBC*.

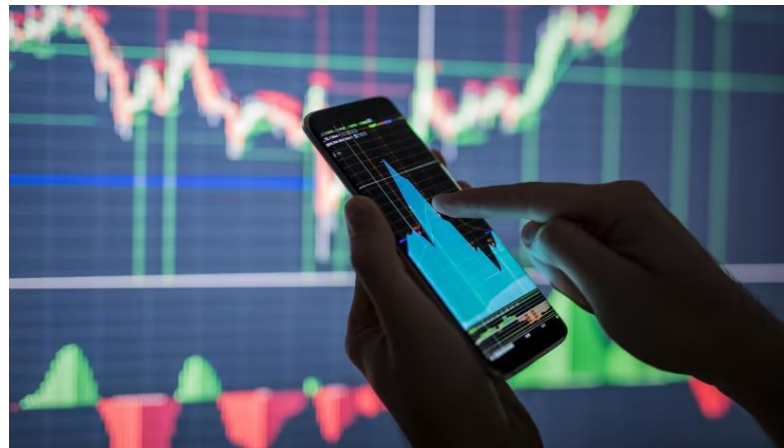
# Project HOST

- **Health**
- **Outcomes of**
- **Speculative**
- **Trading**



EVERGREEN  
council on problem gambling

Research made possible by ECPG's  
Dissertation Research Grant



# Project HOST

## Research Goals

- Collect **baseline data** on young adults' engagement in speculative trading and their health indices



# Project HOST

## Research Goals

- Collect **baseline data** on young adults' engagement in speculative trading and their mental health indices
- Utilize a **longitudinal** study design, enabling the assessment of relationships over time and potential causal relationships



# Project HOST

## Research Goals

- Collect **baseline data** on young adults' engagement in speculative trading and their mental health indices
- Utilize a **longitudinal** study design, enabling the assessment of relationships over time and potential causal relationships
- **Long term goal**: support larger studies leading to the development and testing of **prevention** and **intervention** work



# Recruitment of subjects

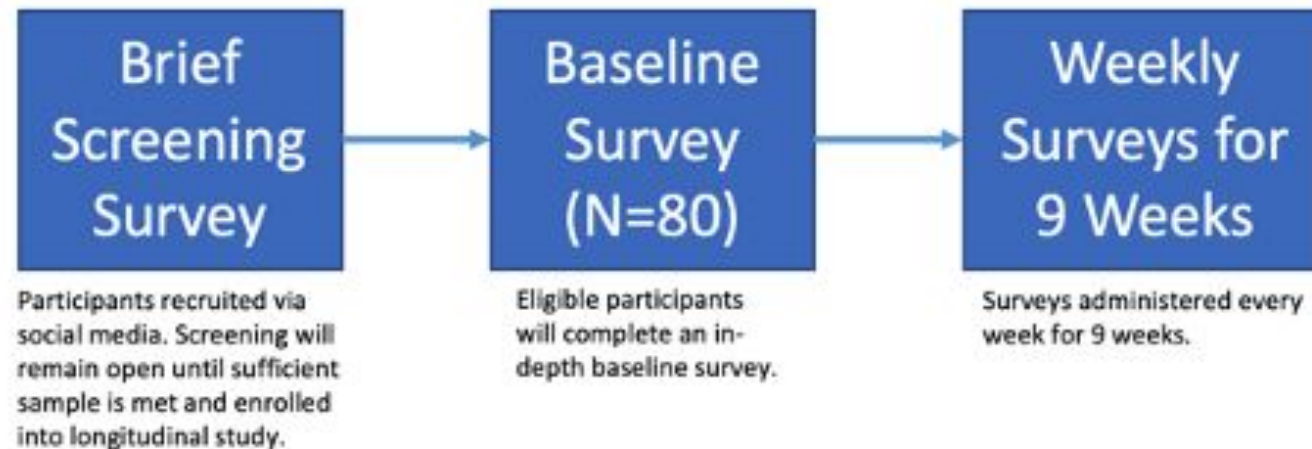


- 80 young adult subjects recruited in WA using social media and community recruitment
  - Ages 18-25
  - Engage in speculative trading 2+ times in the past week
  - No history of treatment, and not seeking treatment for problem gambling
- **Trading:**
  - Checking prices
  - Buying and selling assets
  - Evaluating available information related to trading

# Data Collection Procedures

- Each subject is screened by phone call
- After screening, eligible subjects complete:
  - Initial baseline assessment that includes demographic survey items
  - 9 follow-up assessments at 1-week intervals
  - Conducted over REDCap online survey platform

**Figure 1.** Overview of study design and participant flow.



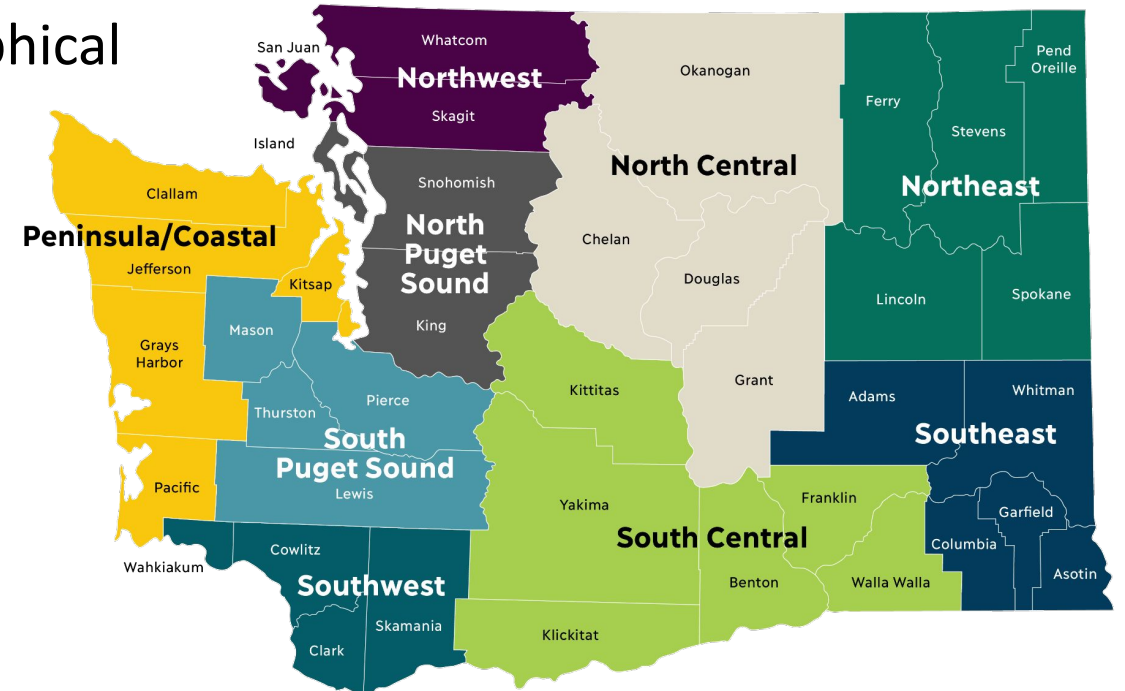
# Measures collected from participants

- **Demographic variables**

- Age, gender/sex, sexual identity, geographical region
- Race/ethnicity/cultural backgrounds
- Employment, income, education
- Family history of problem gambling, engagement in gambling activities

- **Used as:**

- Potential control variables
- Descriptors of sample and generalizability



# Measures collected from participants

- **Speculative trading behaviors**
  - Frequency
  - Total time spent per week
  - Expenditure (\$)
  - % of personal income used



# Measures collected from participants



- **Trading adaptation of PGSI** (Problem Gambling Severity Index) – Problem trading negative consequences
- **Personal attitudes** (approval/disapproval of trading)
- Perceived **injunctive norms** are based on the inference of others' approval of trading
- Perceived **descriptive norms** (how much and how often others seem to trade)

# Measures collected from participants

- **Other Covariates or potential moderating factors**
  - **Impulsivity** (Abbreviated Impulsiveness Scale; Coutlee et al., 2014)
  - **Motives for trading** (adapted from Stewart et al., 2008)
  - **Sensation seeking** (Hoyle et al., 2002)
  - **Financial overconfidence** (adapted from Barber et al., 2020)



# Measures collected from participants

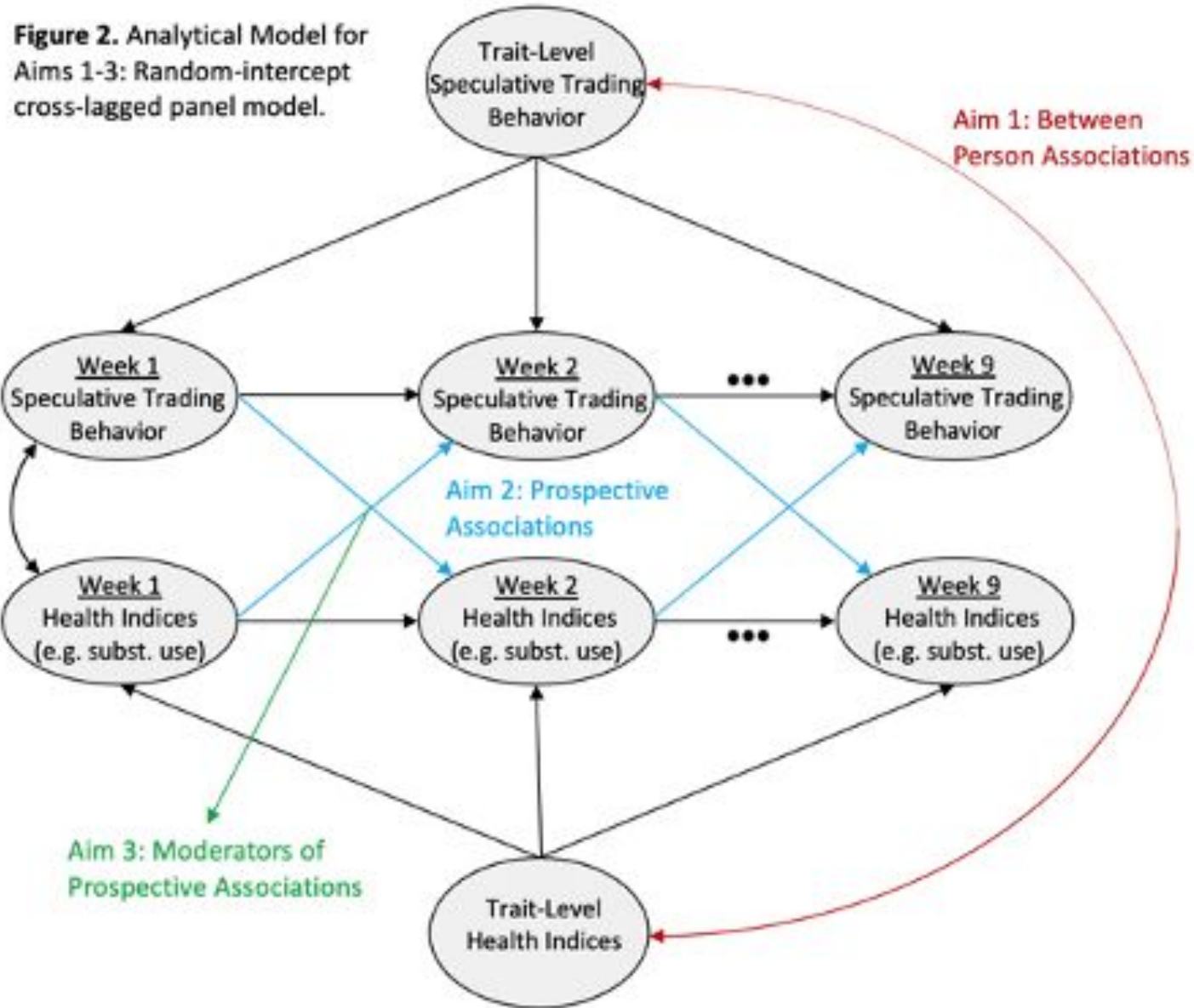
- And finally, outcome (dependent) variables
  - **Psychiatric symptoms** (depression, anxiety, stress scales: DASS-21; Henry et al., 2005, PHQ-9; Kroenke et al., 2001, GAD-7; Spitzer et al., 2006)
  - **Positive / negative affect** (PANAS; Watson et al., 1988)
  - **Social isolation/loneliness** (UCLA Loneliness Scale; Hughes et al., 2004)
  - **Social desirability** (Balanced Inventory of Desirable Responding; Paulhus, 1998)
  - **Suicidal ideation** (SIDAS; Van Spijker et al., 2014)
  - **Substance use and negative consequences**: alcohol, cannabis, recreational drugs (AUDIT; ASSIST; Humeniuk, 2008, Daily Drinking Questionnaire; Collins et al., 1985, Daily Marijuana Questionnaire; Lee et al., 2013)
- All outcome variables asked longitudinally

# Data analysis

- Identify **between person associations** (trait level links between trading and mental health indices across time points)
- Identify **longitudinal associations** between speculative trading and health indices
- Using **structural equation modeling / random-intercept cross-lagged panel modeling** (RI-CLPM; Hamaker et al., 2015)

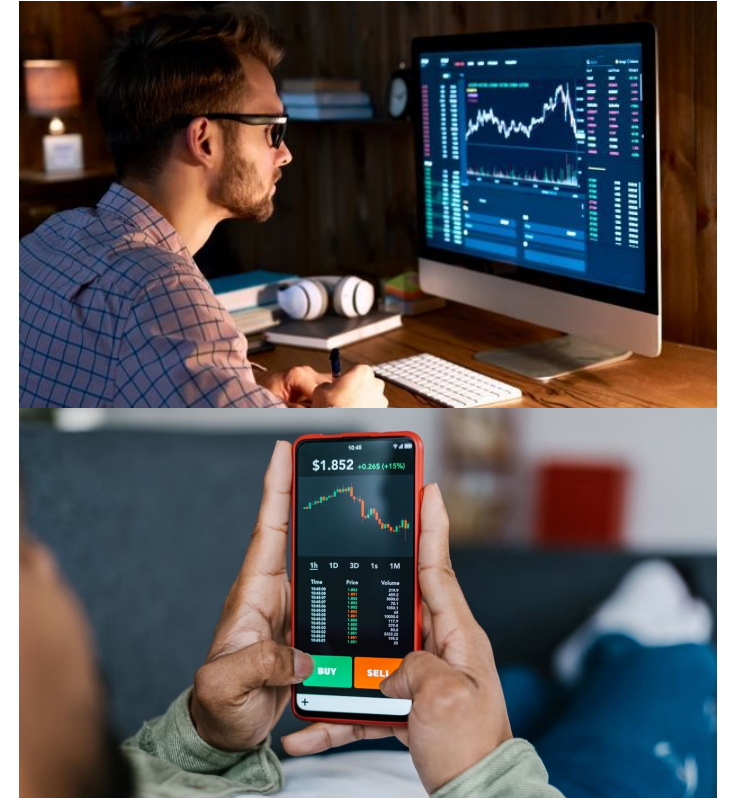


# Data analysis



# Study Implications

- Results can serve as one of first formal examinations of the health risks of speculative trading in young adults, a fast spreading activity with key similarities to gambling
- This line of research will raise awareness of the potential harms of speculative trading in the era of unlimited online access, and have salient implications for future intervention development and grant funding



# Preliminary Results from Project STAND (adjacent study)

## **Project STAND (Speculative Trading Assessment and Norms Development)**

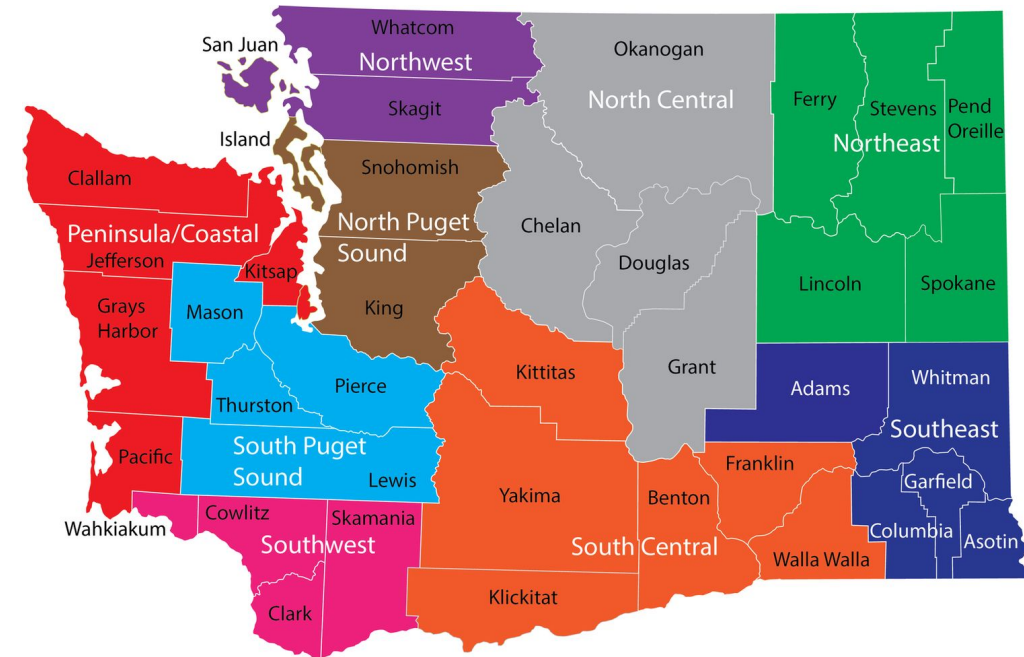
PI: Scott Graupensperger, PhD

Research Assistant: Amanda Lee



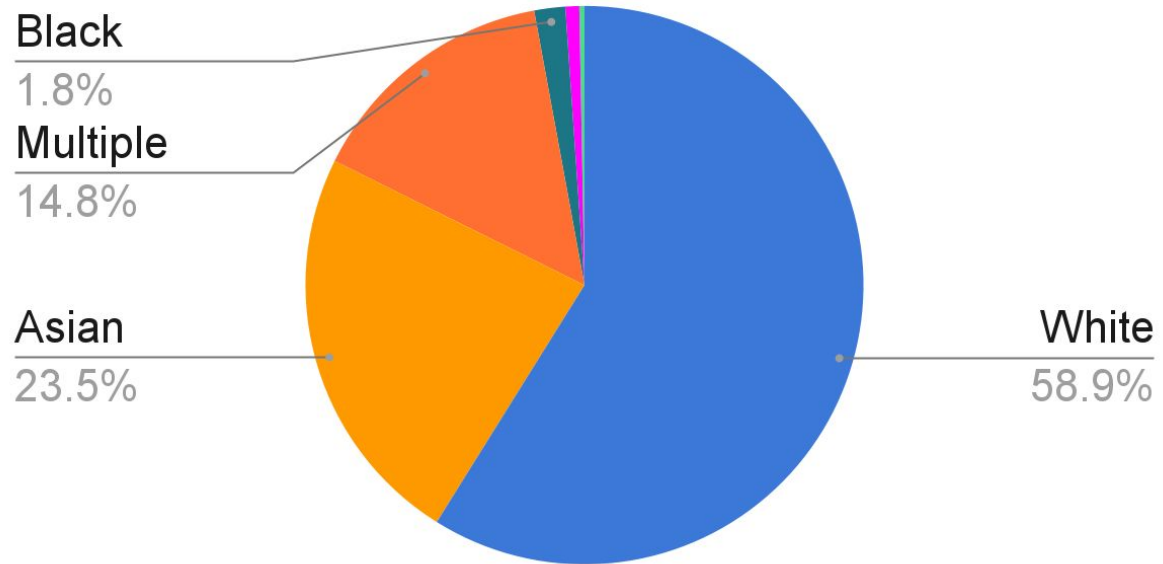
# Demographics

<b>Sample size</b>	361 (normative, social media recruitment)
<b>Location</b>	Washington State
<b>Age</b>	18-25, mean average 20.9
<b>Birth sex</b>	50.4% female, 49.6% male
<b>Average income (personal)</b>	\$2405/month

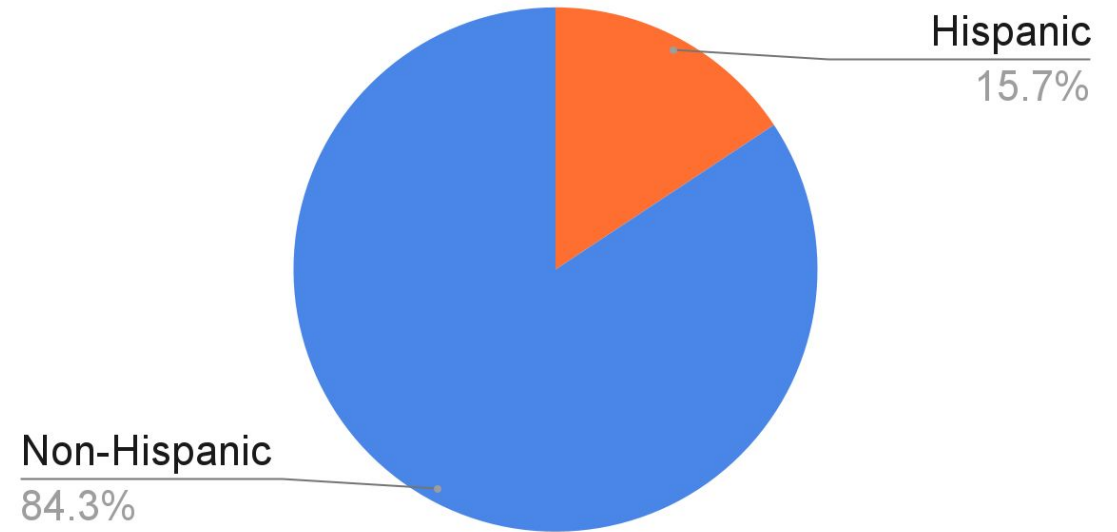


# Race and Ethnicity

## Race

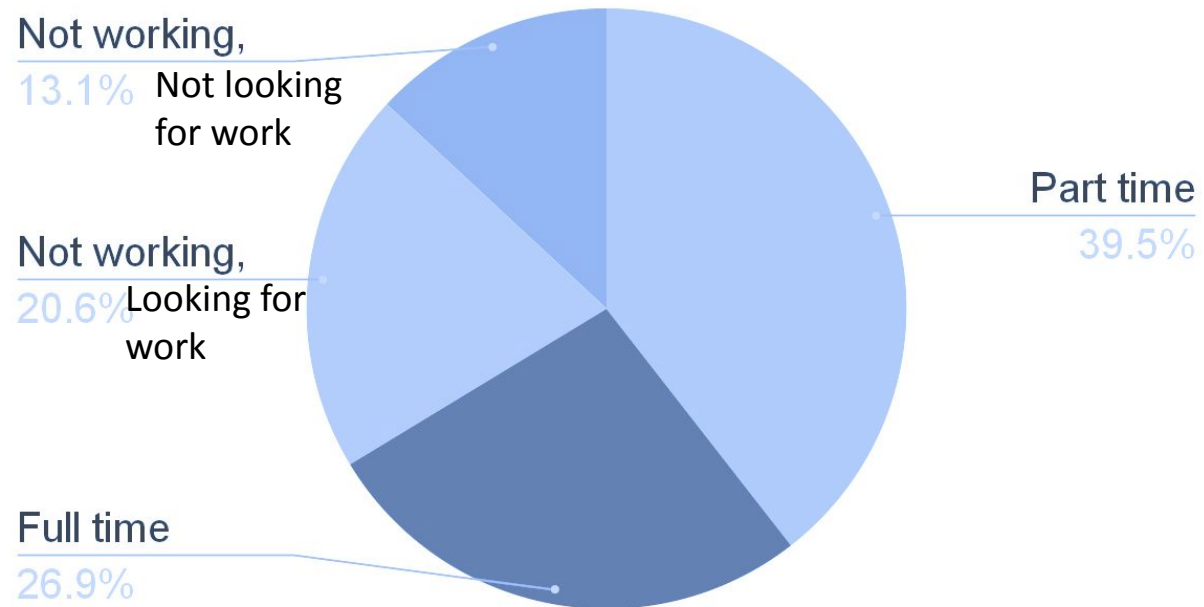


## Ethnicity

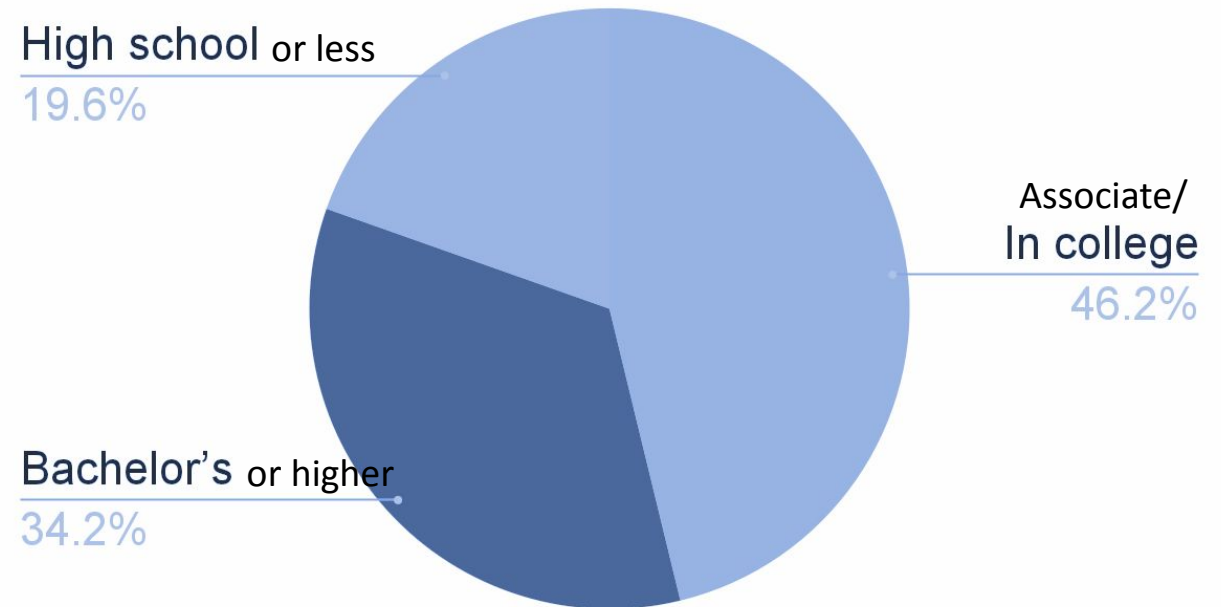


# Employment and Education

## Employment Status



## Education Level

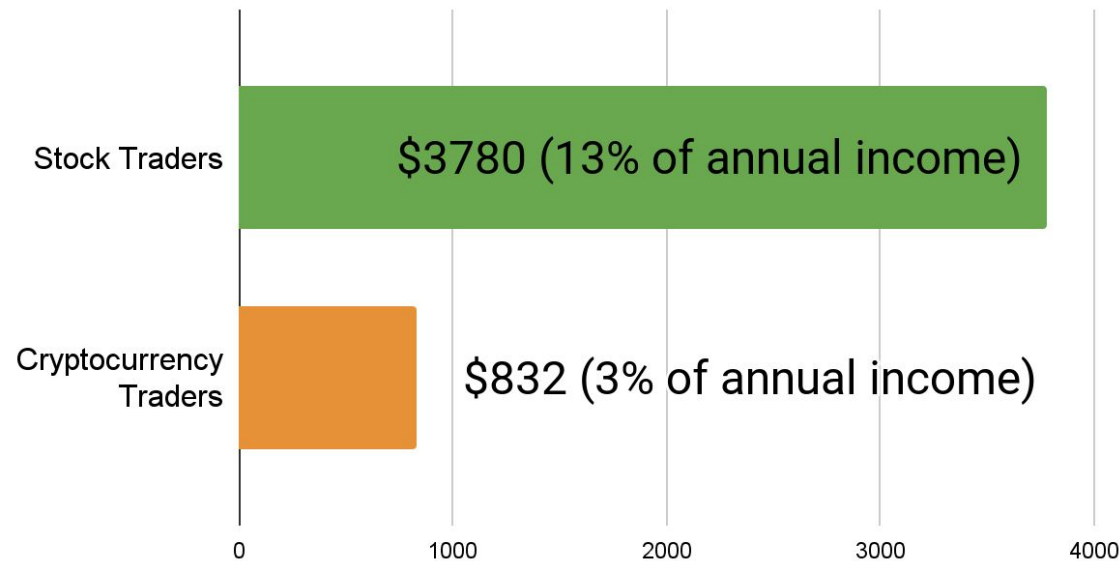


# Descriptive Findings

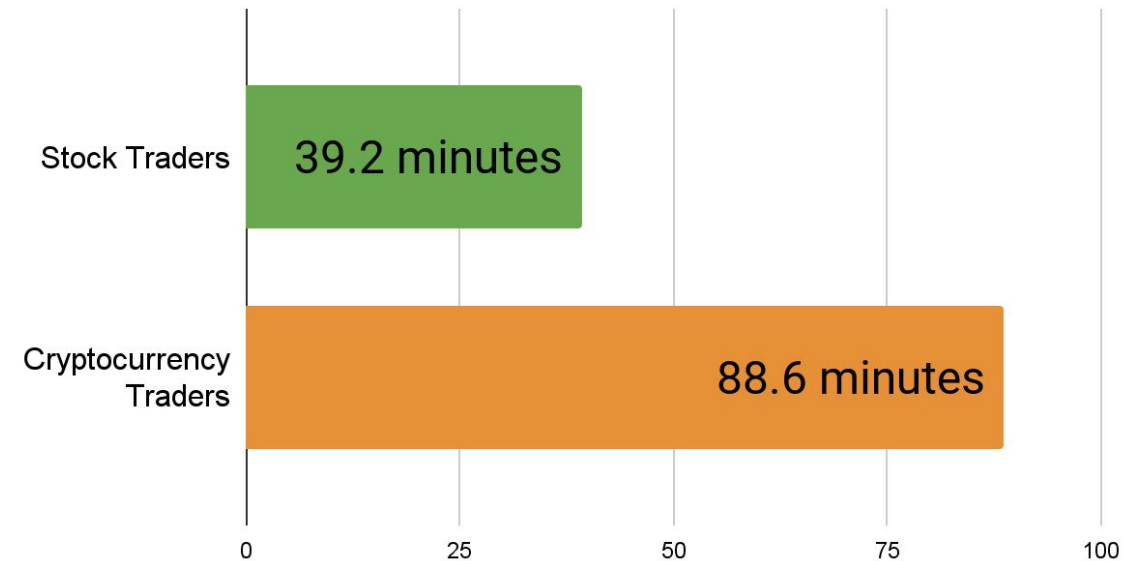
- **Male birth sex** predicted both crypto and stock trading participation
- **Older age** predicted stock trading participation
- Prevalence of crypto trading in normative sample: **9.3%**
- Prevalence of stock trading in normative sample: **8.4%**

# Money and Time Spent

## Average Dollars Wagered (USD)



## Average Time Spent (minutes per week)



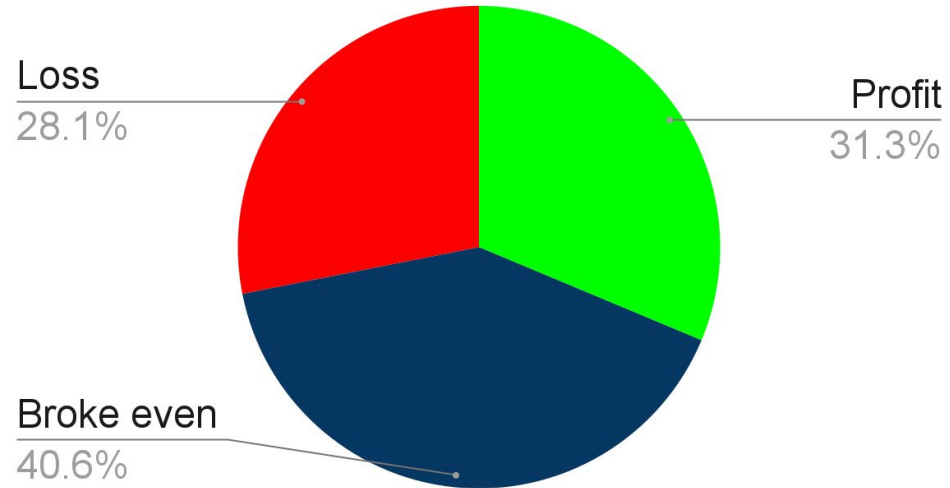
### Notes:

1 extreme outlier removed for each calculation.

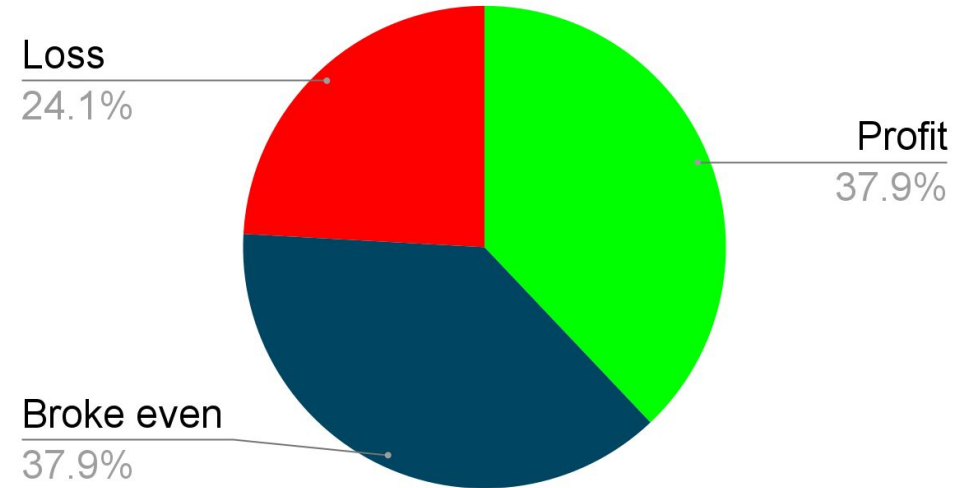
Stock traders n = 29, cryptocurrency traders n = 32.

# Profit and Loss

Past year cryptocurrency traders (n=32)



Past year stock traders (n=29)



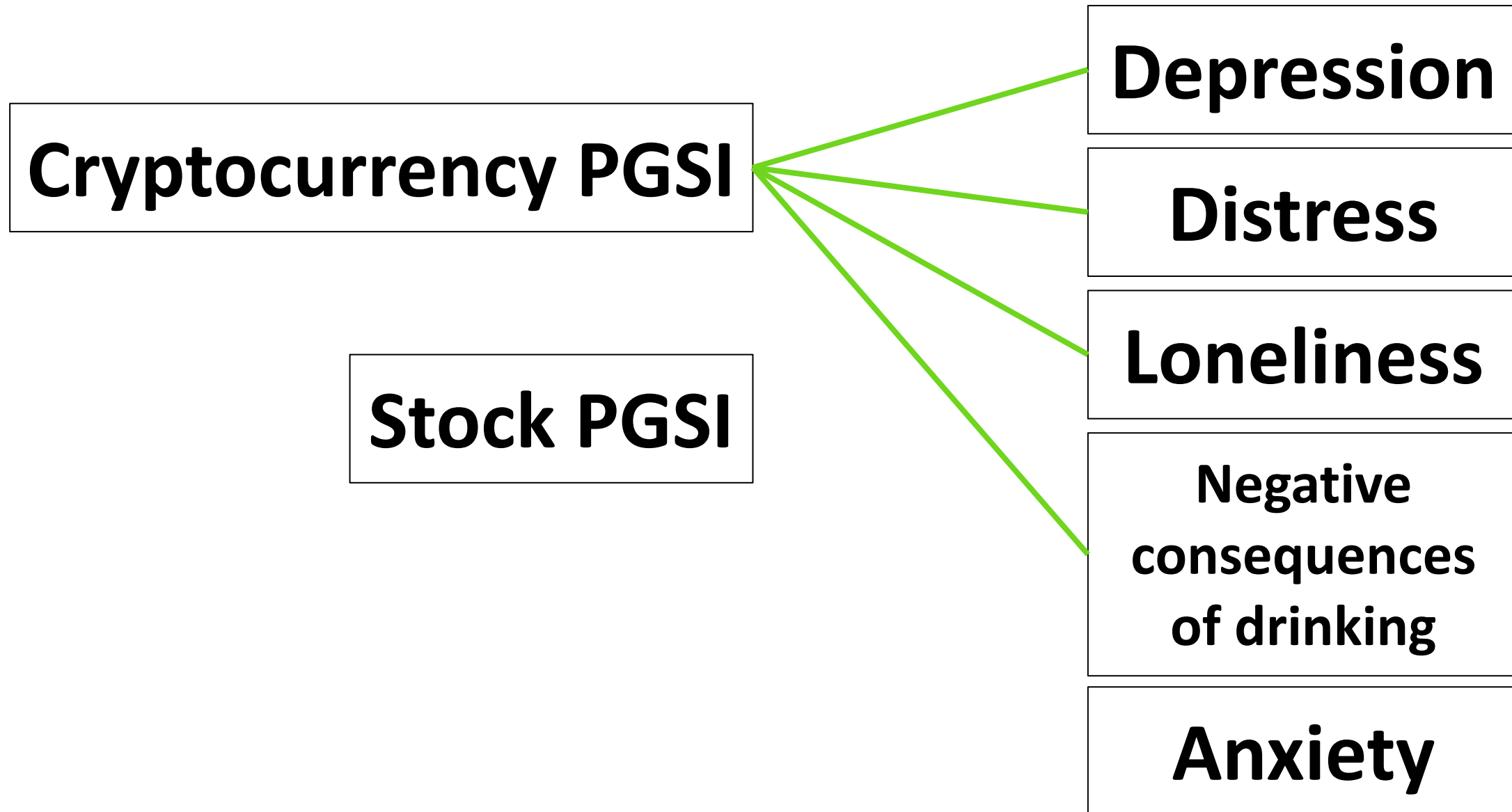
# Early Results: Substance Use and Trading

- Alcohol drinking frequency was associated with **14% higher** cryptocurrency trading frequency ( $p=.04$ ), and the link was **moderated by impulsivity**
- Heavy episodic drinking was related to a **9% increase** in cryptocurrency trading frequency ( $p=.04$ )
- Cannabis use was linked to **8% lower** cryptocurrency trading frequency ( $p=.04$ ) and **14% lower** stock trading frequency ( $p<.001$ )

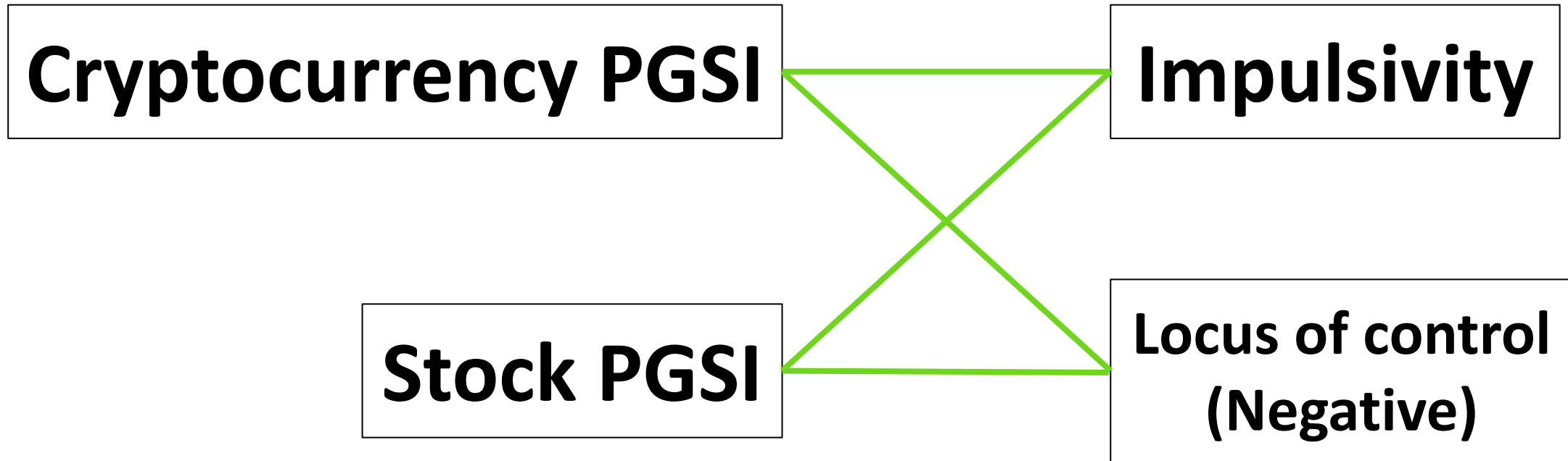
# Early Results: Substance Use and Trading

- **9%** of all participants who traded in the past year reported making impulsive or foolish trades while under the influence of alcohol

# Early Results: Trading PGSI and Mental Health



# Early Results: Trading PGSI and Traits



# Early Results: Injunctive Norms (Stocks)

	<b>Close friends' approval</b>	<b>Parents' approval</b>	<b>Typical young adults' approval</b>
<b>Participation</b>	<b>Prediction</b>	<b>No prediction</b>	<b>No prediction</b>
<b>Frequency</b>	<b>No prediction</b>	<b>Prediction</b>	<b>No prediction</b>
<b>Time spent</b>	<b>Prediction</b>	<b>Prediction</b>	<b>No prediction</b>

# Early Results: Injunctive Norms (Cryptocurrencies)

	<b>Close friends' approval</b>	<b>Parents' approval</b>	<b>Typical young adults' approval</b>
<b>Participation</b>	<i>Strong Prediction</i>	<b>Prediction</b>	<b>No prediction</b>
<b>Frequency</b>	<i>Strong Prediction</i>	<b>Prediction</b>	<b>No prediction</b>
<b>Time spent</b>	<i>Strong Prediction</i>	<b>Prediction</b>	<b>No prediction</b>

# Early Results: Descriptive Norms

	<b>Time Spent</b>	<b>Frequency</b>
<b>Cryptocurrency Trading</b>	<b>Prediction</b>	<b>No prediction</b>
<b>Stock Trading</b>	<b>Prediction</b>	<b>No prediction</b>

# Questions

