



# IDENTIFYING PREDICTORS OF PREVENTIVE BEHAVIORS USING

## A FINANCIALLY INCENTIVIZED EXPERIMENT – A PILOT STUDY

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### Introduction

The majority of studies in the field of medical decision making rely on surveys, interviews or experimental analogs and not on randomized clinical trials. This is especially true in the context of predictive genetic tests due to challenging ethical, legal and privacy concerns.

To address this issue in the context of better understanding the relationship between genetic health-risk information, constructs coming from the Health Belief Model and the prevalence of preventive behaviors following testing, we conducted a financially incentivized experiment akin to those used by behavioral economists.

### Aims

We wanted to test whether we could increase the prevalence of preventive behaviors by:

- 1) displaying unfavorable genetic test results,
- 2) increasing disease susceptibility,
- 3) increasing prevention effectiveness.

### Methods

Incentivized online experiment. Factors:  
- disease susceptibility (high/low),  
- effectiveness of prevention (high/low).

Population: 383 Polish students

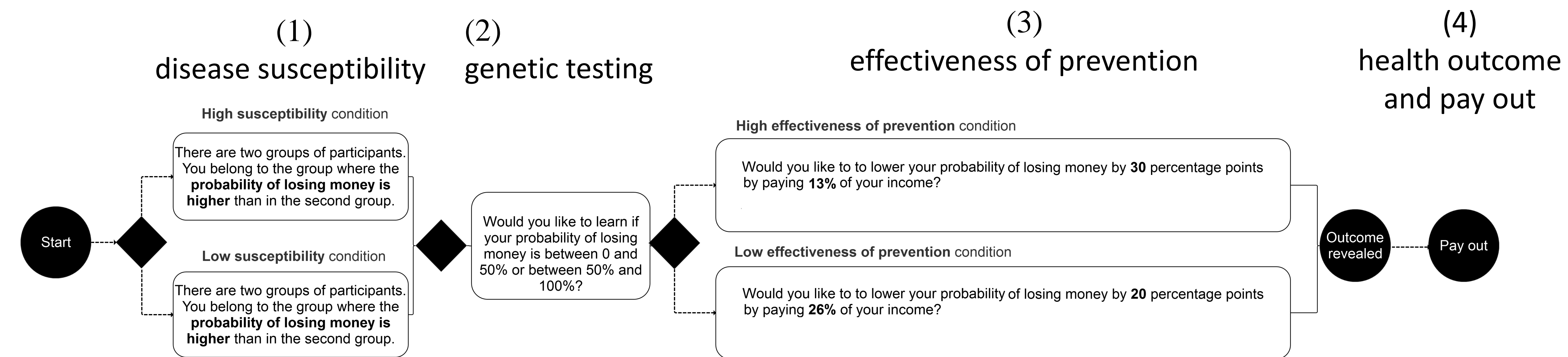
Mean age: 20.89 (SD=2.76)

Gender: 38.9% male

### Experimental design

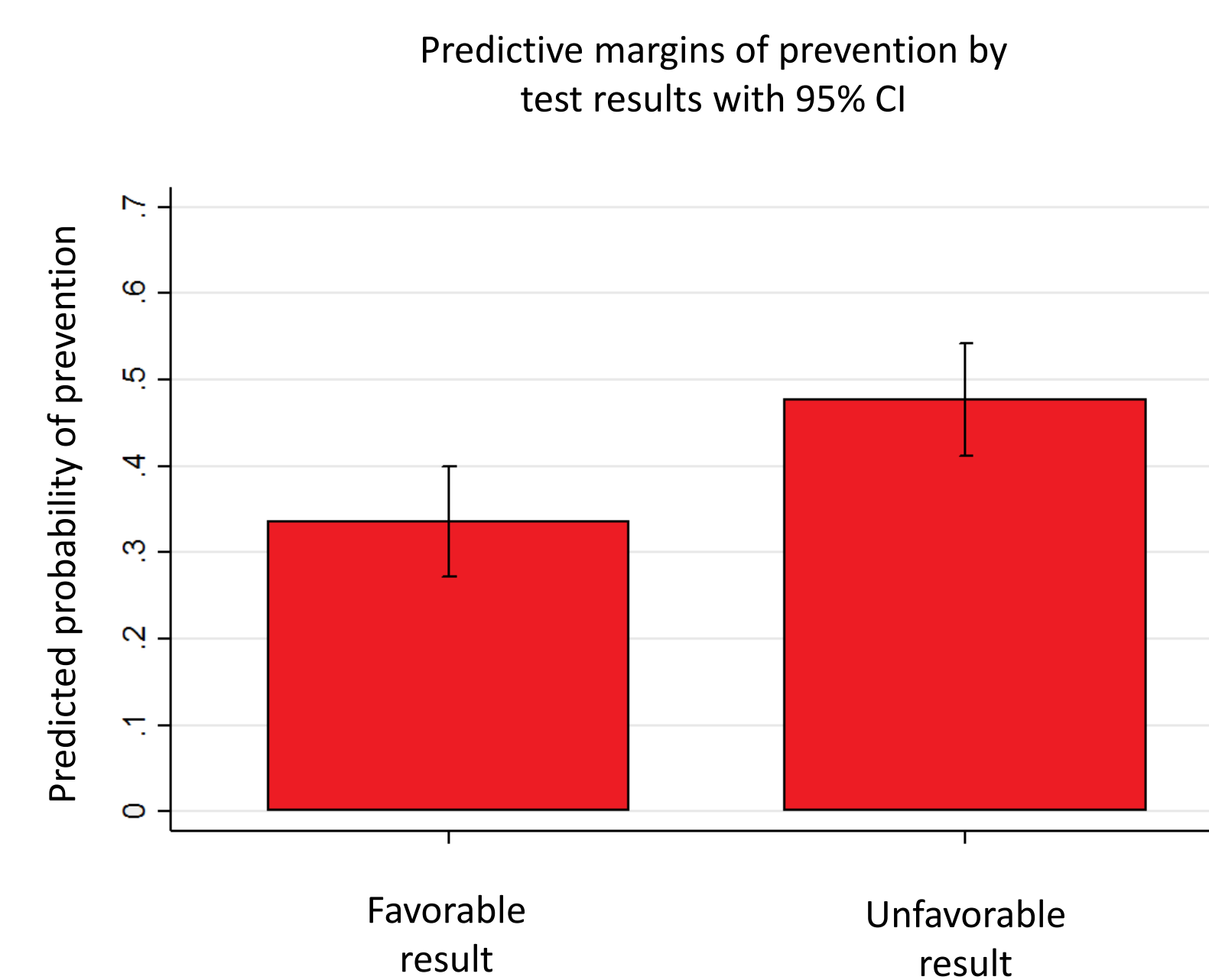
The experiment had the following structure. We had explained it to participants before the experiment started.

- 1) We gave each subject \$9 to represent their health state and told them that they may lose between 90% and 45% of the money at the end of the experiment.
- 2) We informed subjects that they belonged to a group with either a high or a low risk of losing money (**high/low disease susceptibility**).
- 3) We offered participants information about their likelihood of losing money, which they either elected to see or not. This corresponded to electing to undergo **genetic testing**.
- 4) We gave subjects an opportunity to engage in prevention and decrease their likelihood of losing money by 30 or 20 percentage points (**high/low effectiveness of prevention**) by paying a percentage of their income.
- 5) Each subject either lost a proportion of money or not (**health outcome**). The final amount of money was transferred to subject's PayPal account.

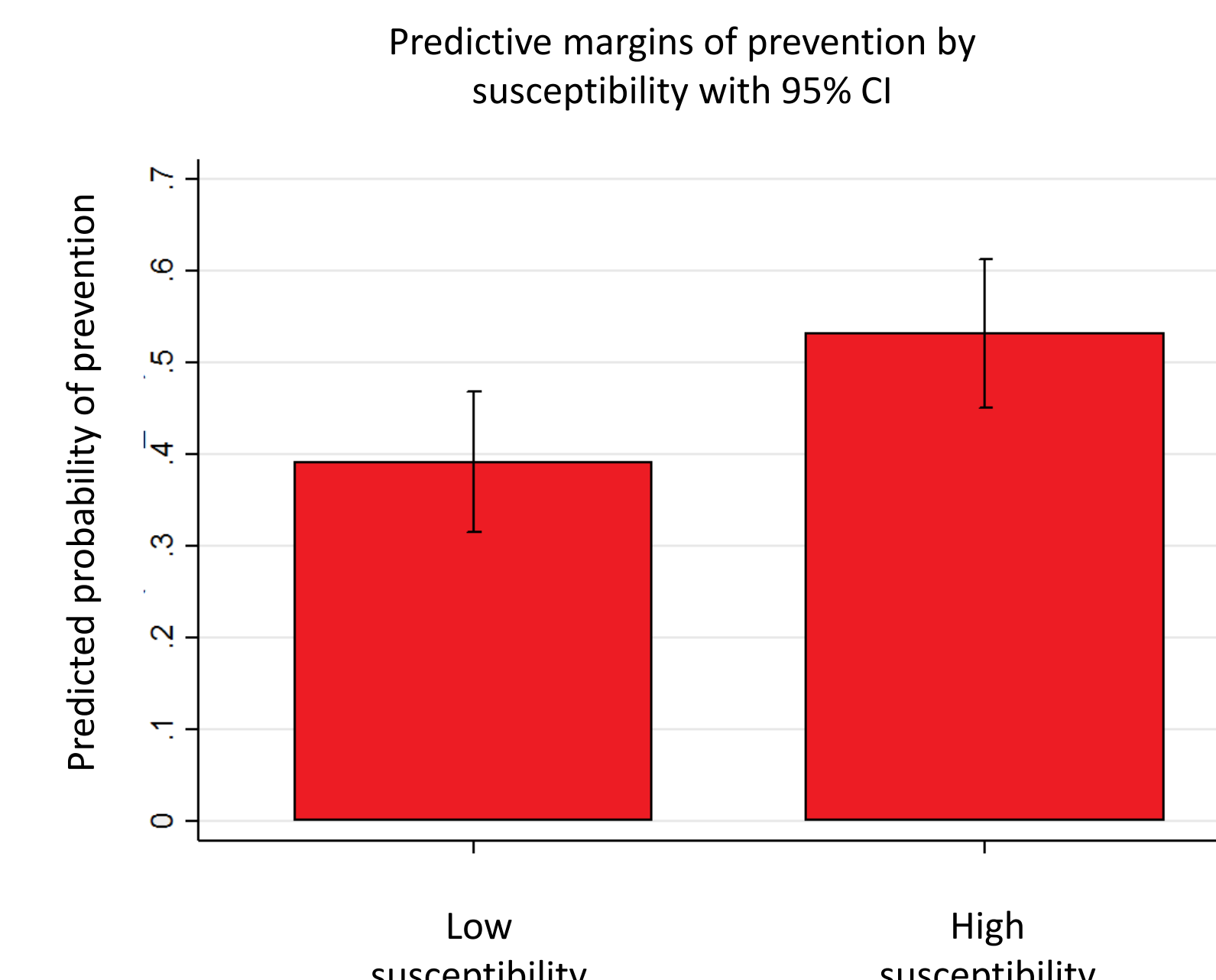


### Results

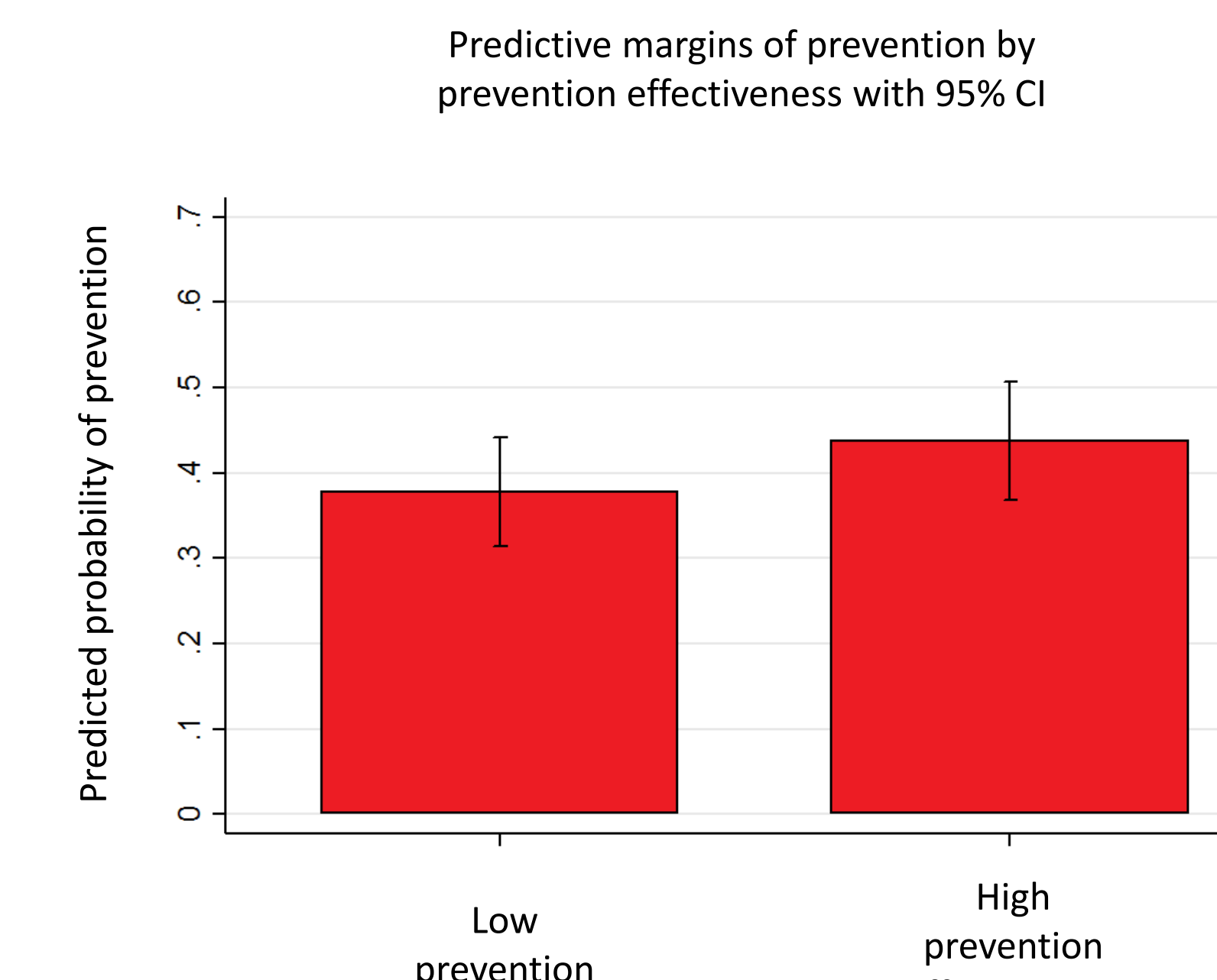
On average **72.85%** elected to **undergo testing**. **40.2%** of participants **engaged in preventive behaviors**.



**Unfavorable test results** led to more preventive behaviors (odds ratio [95% CI] of 1.91 [1.12, 3.26], p = 0.017).



**High disease susceptibility** increased engagement in prevention (2.05 [1.28, 3.29], p=0.003)



**Effectiveness of prevention** seemed to lead to more preventive behaviors across all treatment conditions but this effect is not statistically significant.

These results were obtained by fitting a logistic regression with Huber-White sandwich variance estimator. The decision to purchase prevention was the outcome binary variable. Disease susceptibility and prevention effectiveness were binary predictor variables. Among our control variables were locus of control, various risk measures, time preferences, age, sex, education, religion, **income, and coping style**. These last two controls were statistically significant.

### Conclusions

In this pilot study we showed that preventive behaviors are increased by:

- 1) unfavorable test results,
- 2) increased disease susceptibility.

Data suggest that increased prevention effectiveness does not lead to more prevention behaviors.

### Limitations

- Student population
- Subjects unaware of context
- Low stakes

### Future research

- Increase stakes
- Add health context
- Frame testing in terms of gains
- Explore the role of affective vs. deliberate decision making

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