

# Association between physical activity and psychological distress during COVID-19:

## A longitudinal study of older adults in Quebec.

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### Introduction

- Stay at home and physical distance directives have been emphasized for older adults who are a population with increased risk for greater severity of COVID-19.
- Confinement measures are important to reduce spread of the virus; however, they may have collateral consequences.
  - Social disconnectedness and isolation
  - Reduced opportunity to engage in physical activity
- Some health behaviours, such as engaging in physical activity (PA), can act as resilience factors against psychological distress<sup>1,2,3</sup>.

### Research Objectives

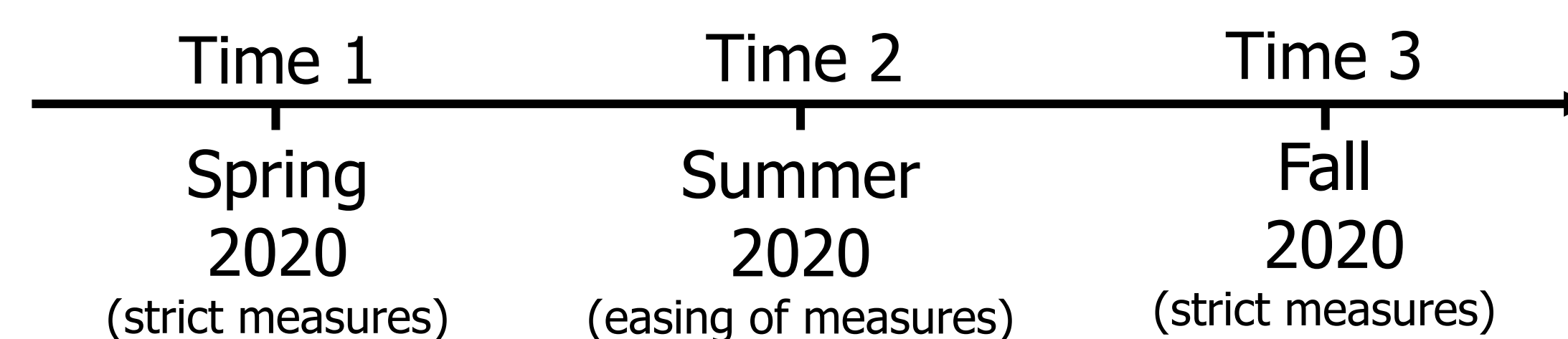
1. To examine the levels of psychological distress and physical activity in older adults across three time points during the COVID-19 pandemic.
2. To examine the associations and directionality of the relationship between psychological distress and physical activity across three time points.

### Methods

#### Participants:

- 577 older adults at T1 (mean age = 79.13 yr, SD=5.43); 390 participants remained involved at T3 (retention rate: 67.5%)
- Recruited from CRIUGM, ESA, and newspaper advertisements
- Exclusion criteria: <60 years old, major cognitive impairments

#### Longitudinal Assessment:



[1] Ströhle, A. (2009). Physical activity, exercise, depression and anxiety disorders. *Journal of neural transmission*, 116(6), 777-784.  
[2] Teixeira, C. M., et al. (2013). Physical activity, depression and anxiety among the elderly. *Social Indicators Research*, 113(1), 307-318.  
[3] de Oliveira, L., et al. (2019). The effects of physical activity on anxiety, depression, and quality of life in elderly people living in the community. *Trends in psychiatry and psychotherapy*, 41(1), 36-42.  
[4] Kessler, R. C., et al. (2002). Short screening scales to monitor population prevalences and trends in non-specific psychological distress. *Psychological medicine*, 32(6), 959.  
[5] Craig, C. L., et al. (2003). International physical activity questionnaire: 12-country reliability and validity. *Medicine & science in sports & exercise*, 35(8), 1381-1395.

### Methods

#### Psychological Distress (Kessler Psychological Distress Scale)<sup>4</sup>:

- 10 item questionnaire
  - In the past two weeks, how often did you feel hopeless?
  - How often did you feel so nervous that nothing could calm you?
- 1–5 Likert scale ranging from "None of the time" to "All of the time".

#### International Physical Activity Questionnaire (IPAQ)<sup>5</sup>:

- 7 item questionnaire relating to amount of sitting, walking, moderate, or vigorous exercise.
  - Total physical activity scores computed as a weighted average of engagement in walking, moderate, and vigorous exercise in MET.

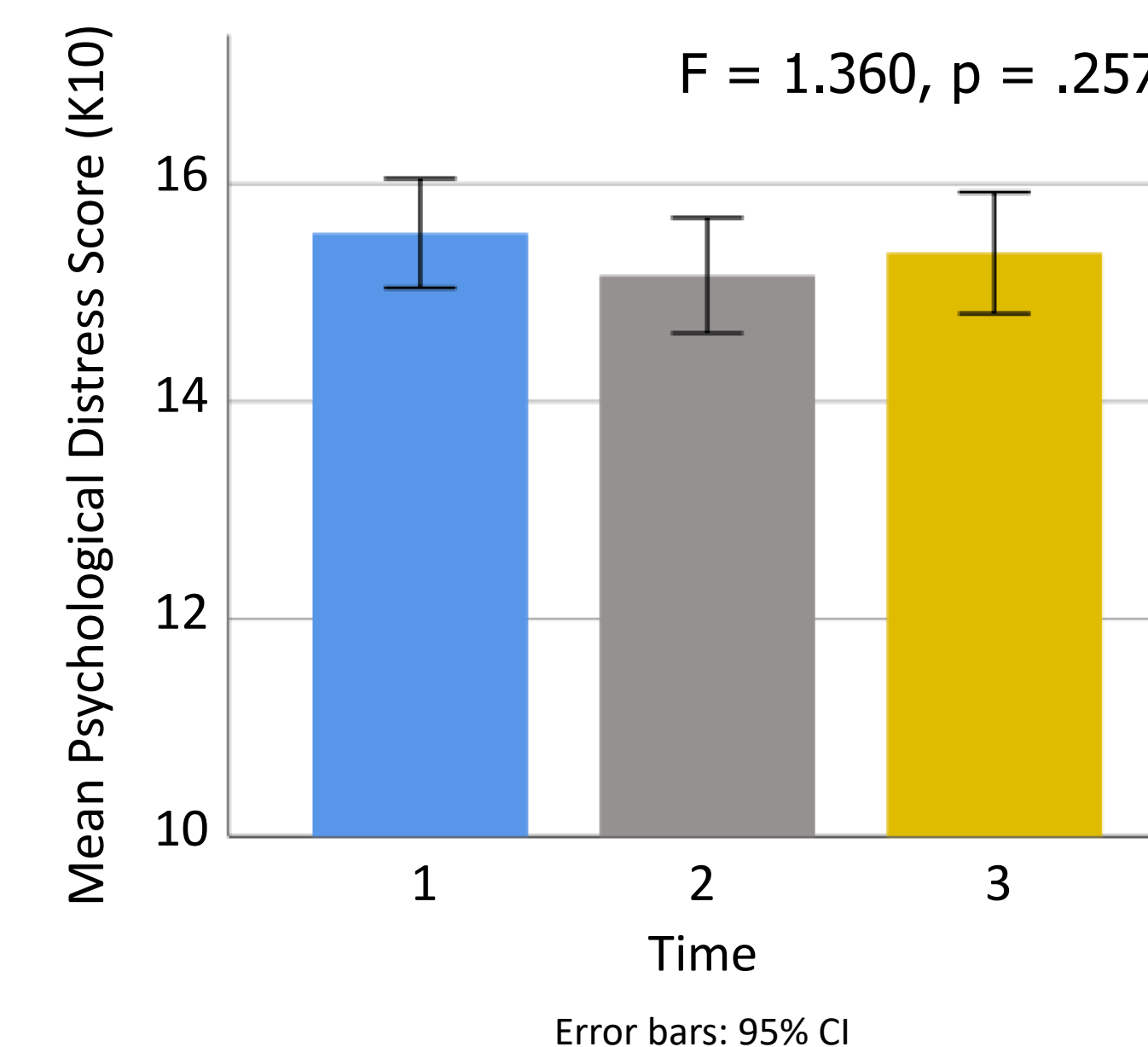
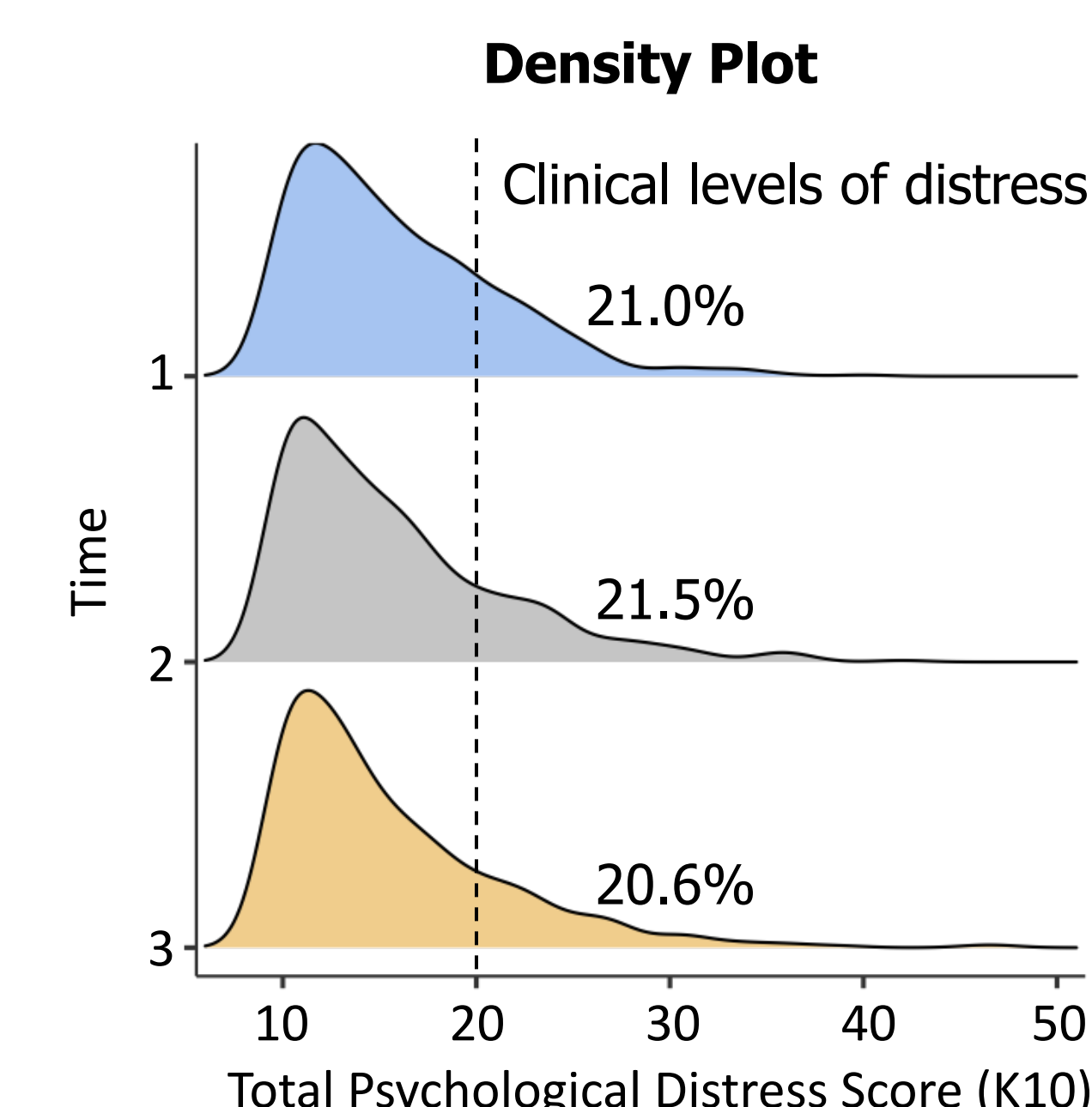
**Health Risk:** Do you suffer from chronic problems associated with increased risk for COVID-19?

- 1. Hypertension? 2. Cardiovascular problems? 3. Lung problems?

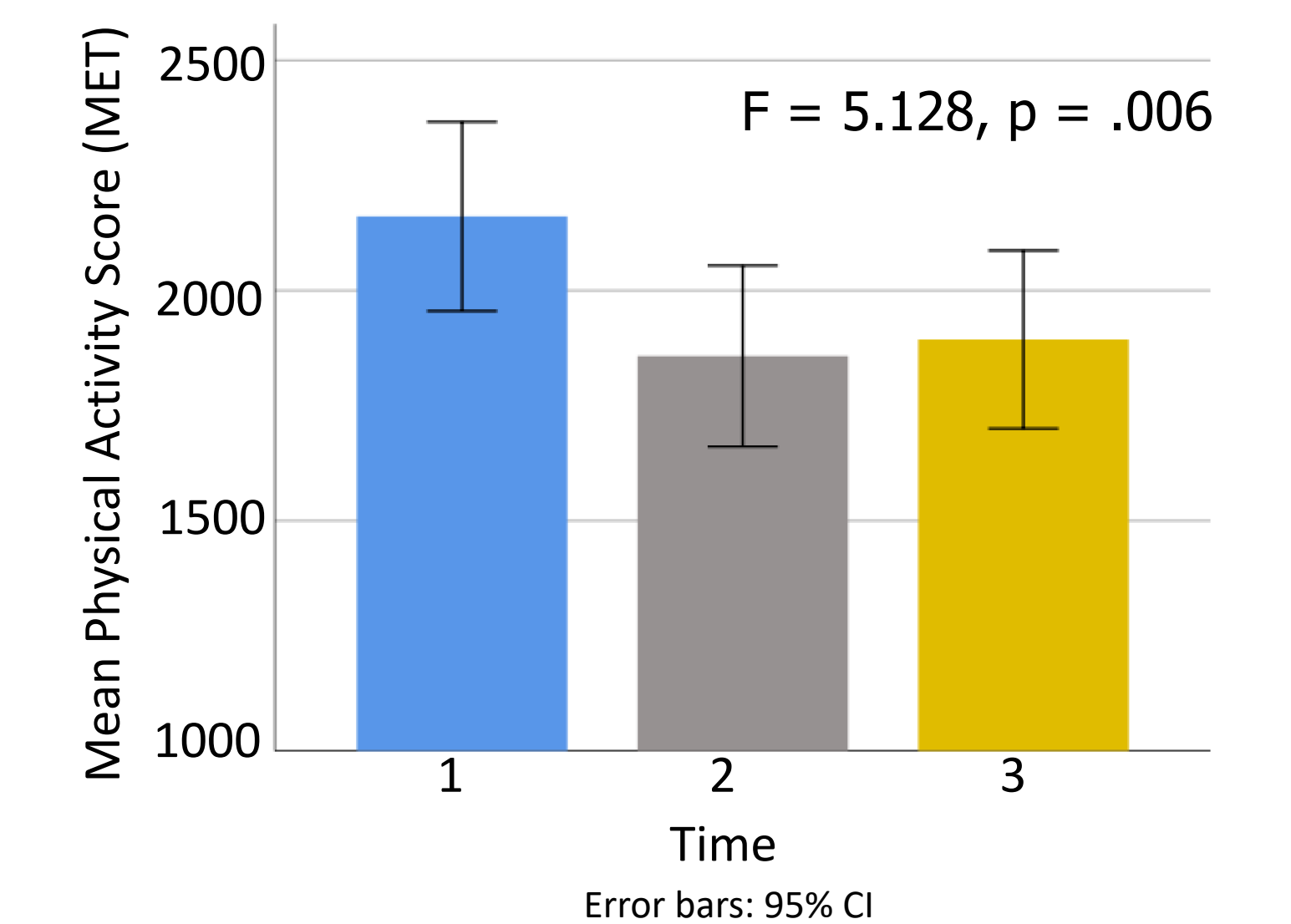
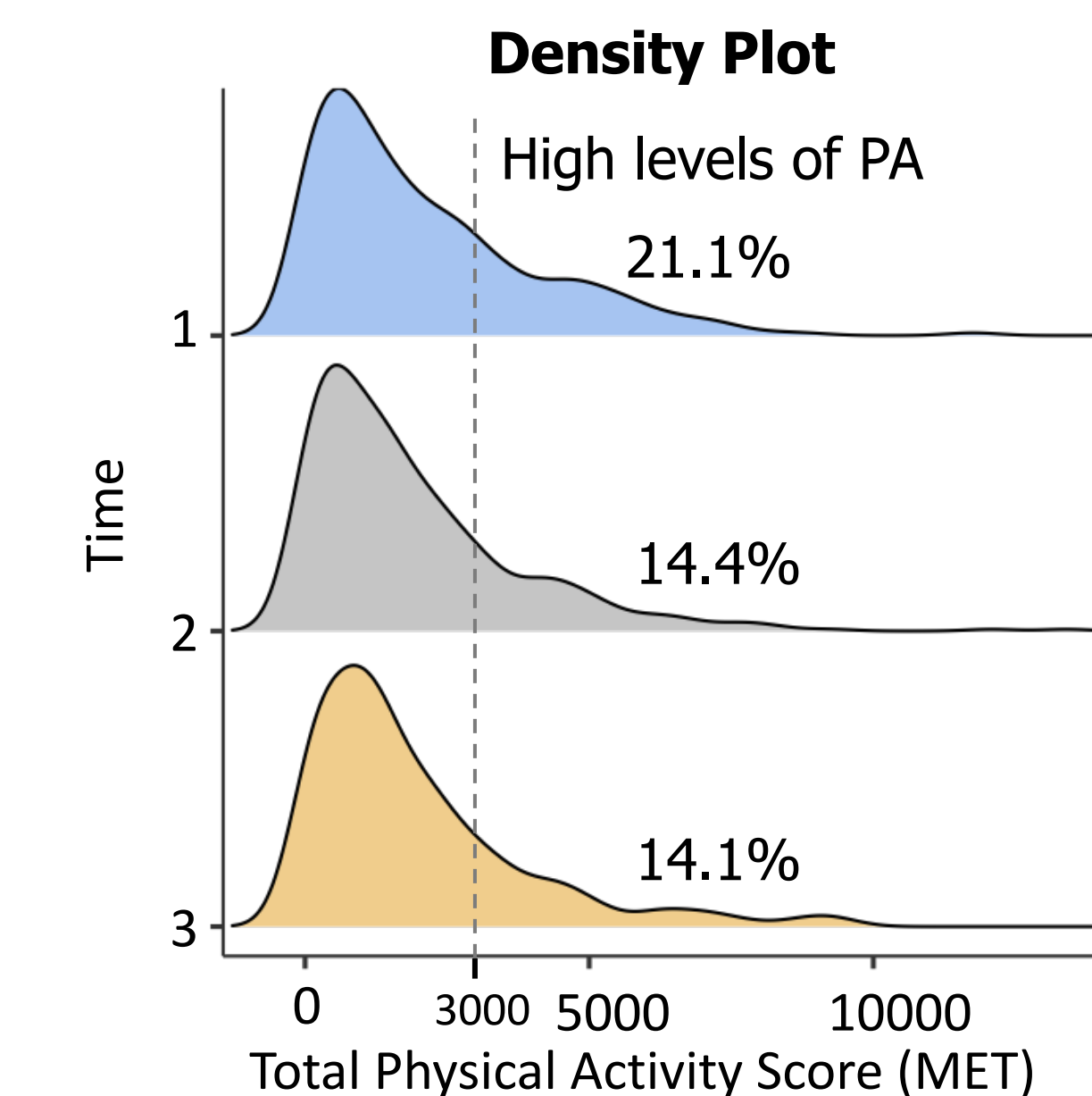
### Statistical Analyses

- A cross-lagged panel model examined the directionality of the association between physical activity and psychological distress.
  - Log transformations were performed on outcome variables
  - Participants with 2+ time points were included
  - Time 1 age, education, sex and health risk were included as covariates.

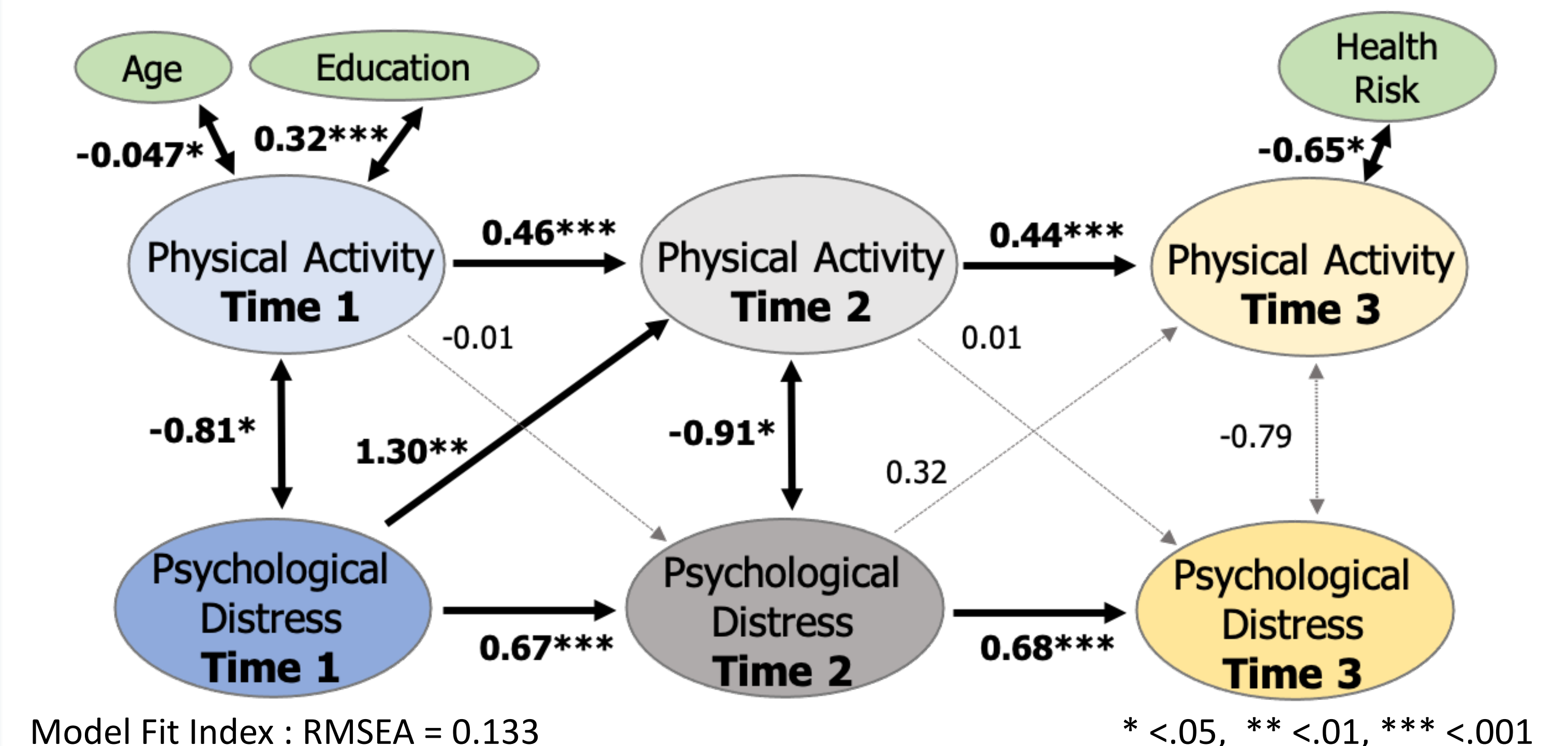
### Results - Psychological Distress Across Time



### Results - Physical Activity Across Time



### Results - Cross-Lagged Panel Analysis



### Conclusions

- Psychological distress levels are stable across time, while overall physical activity scores decrease.
- Those younger and more educated engage in more physical activity at T1.
- Greater physical activity is associated with concurrent lower distress.
  - Engaging in physical activity promotes resilience.
- Psychological distress at T1 predicts more physical activity at T2.
  - Easing of confinement measures? Engaging in positive coping?
- T1 Health Risk is associated with lower in physical activity at T3.
  - Decrease in physical activity may be exacerbated by health risk

**LIMITATIONS:** Self-reported physical activity (reduced reliability)