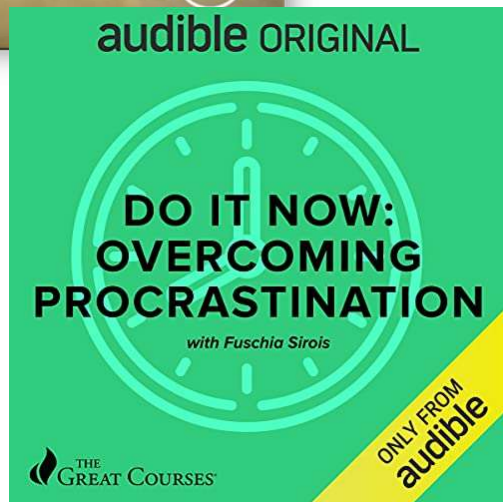
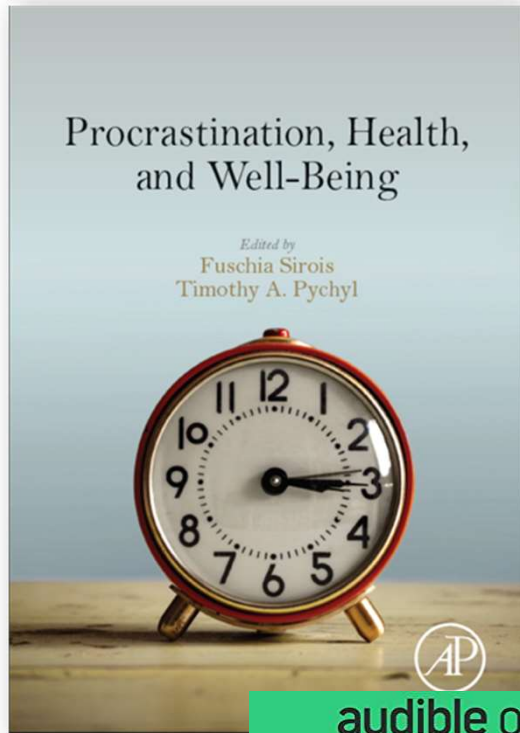


# Understanding & Addressing Procrastination: Implications for Health and Well-being

Professor Fuschia Sirois  
*Department of Psychology*

Inspiring the extraordinary





## MY RESEARCH

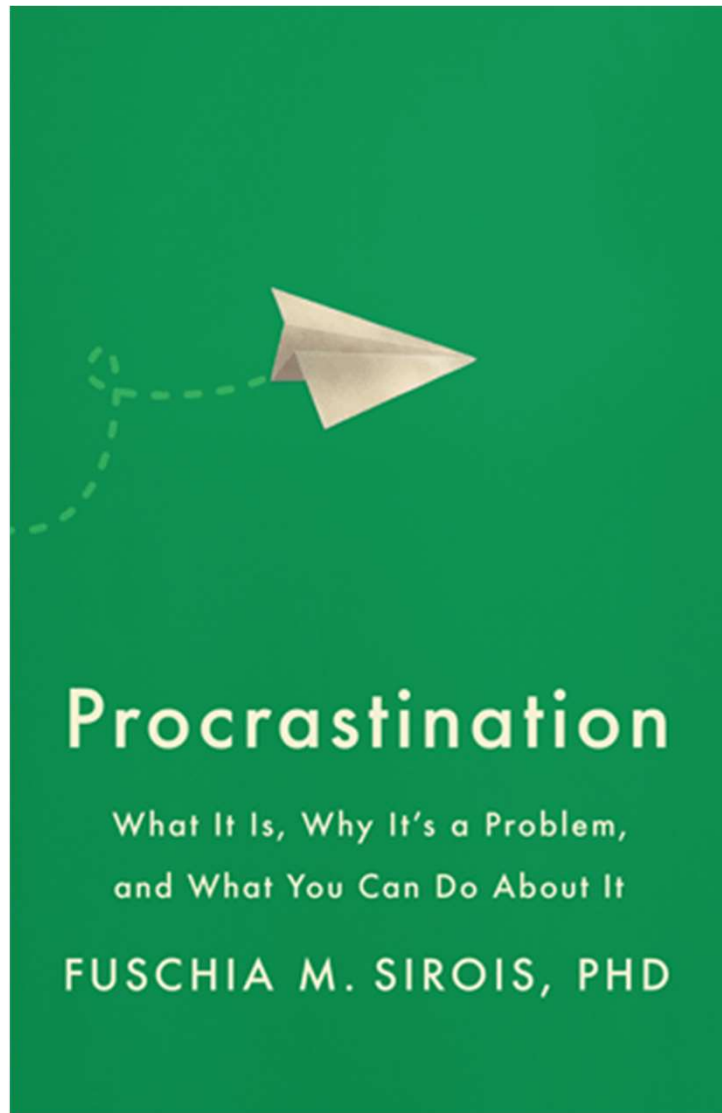
Personality/Health/Social Psychology researcher & lecturer

Originally from Canada – Came to the UK in July 2015.

Joined Durham May 2022

Research focuses on factors for risk or resilience in physical health and well-being

- Procrastination, perfectionism, self-compassion, gratitude, time orientation
- Have researched the causes and consequences of procrastination for over 20 years



AMERICAN  
PSYCHOLOGICAL  
ASSOCIATION

APA Lifetools evidence based  
self-help book (2022)

# Outline

- **What is Procrastination?**
- **What are the implications of procrastination for health and well-being?**
- **Why do people procrastinate?**
- **How can we reduce procrastination?**





**tomorrow** *(noun)*

a mystical land where 99% of all  
human productivity, motivation,  
and achievement are stored



# PROCRASTINATION $\neq$ POOR TIME MANAGEMENT



Image: Aron Visuals from Unsplash

# PROCRASTINATION $\neq$ LAZINESS



Image: Roxanne Minnish from Pexels

# 1. WHAT IS PROCRASTINATION?

derived from the Latin root prō + crāstinus  
= “of tomorrow”

- A common self-regulation problem involving the unnecessary and voluntary delay in the start or completion of important intended tasks despite the recognition that this delay may have negative consequences (Lay, 1986; Sirois & Pychyl, 2015)
- A form of self-regulation failure that involves prioritizing short-term mood repair over the long-term pursuit of intended actions (Sirois & Pychyl, 2013).



# A COMMON PROBLEM

## Procrastination

- Affects ~ 15%–20% of adults
- 80%–95% of college/university students engage in procrastination, 50% consistently (Steel, 2007)

## Occurs across multiple life domains

- Academics
- Work/productivity
- Mental Health
- Physical Health



Procrastination  
behaviour

Chronic  
procrastination

# HOW DO WE MEASURE CHRONIC PROCRASTINATION?

## GPS-9

Please be as honest and accurate as you can throughout. Try not to let your response to one statement influence your responses to other statements. There are no "correct" or "incorrect" answers. Answer according to your own feelings, rather than how you think "most people" would answer.

1 False	2 Not usually true for me	3 Sometimes false/true for me	4 Mostly true for me	5 True of me
1. I often find myself performing tasks that I had intended to do days before.				
2. Even with jobs that require little else except sitting down and doing them, I find they seldom get done for days.				
3. I generally delay before starting work I have to do.				
4. In preparing for some deadlines, I often waste time by doing other things.				
5. I often have a task finished sooner than necessary.				
6. I usually buy even an essential item at the last minute.				
7. I usually accomplish all the things I plan to do in a day.				
8. I am continually saying I'll do it tomorrow.				
9. I usually take care of all the tasks I have to do before I settle down and relax for the evening.				

## 2. WHAT ARE THE IMPLICATIONS OF PROCRASTINATION FOR HEALTH AND WELL-BEING?

### Poor Mental health

- Poor mental health (Stead, Shanahan, & Neufeld, 2010)
- Anxiety and depression (Lay, Edwards, Parker, & Endler, 1989; Martin, Flett, Hewitt, Krames, & Szanto, 1996; Senecal, Koestner, & Vallerand, 1995)



Care-seeking

Stress

Coping

Illness

Health behaviours

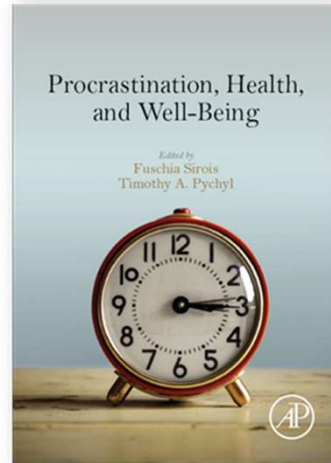
**Poor Physical health** (Sirois, et al., 2003; Sirois, 2004; 2007; Sirois & Tosti, 2009; Tice & Baumeister, 1997)



Procrastination  
behaviour



Chronic  
procrastination



## Health consequences of chronic procrastination

- ↑ Stress (Sirois, et al., 2003; Sirois, 2004; 2007; 2014)
- ↑ Acute health problems (Sirois, et al., 2003; in revision; Sirois, 2007)
- ↑ Risk for poor heart health (Sirois, 2015)
- ↑ Use of maladaptive coping (Sirois & Kitner, 2015)
- ↑ Delay in seeking medical care (Sirois, Melia-Gordon, & Pychyl, 2003; Sirois, 2004; 2007)
- ↓ Sleep quality (Sirois et al., 2019)
- ↓ Health-promoting behaviours behaviours (Sirois, et al., 2003; in revision; Sirois, 2007)
- ↓ Perceived social support (Yang & Sirois, in prep)
- ↓ Coping with fibromyalgia (Beauregard, et al., 2015)

# POOR PHYSICAL HEALTH

Stress

Health  
behaviours

## Direct route:

Stress impacts immune system

- Creation of unnecessary stress (external + internal)

## Indirect route:

Health behaviours

- Fewer health protective behaviours
- Greater number of unhealthy behaviours

# PROCRASTINATION

# PROPOSED PROCRASTINATION-HEALTH MODEL

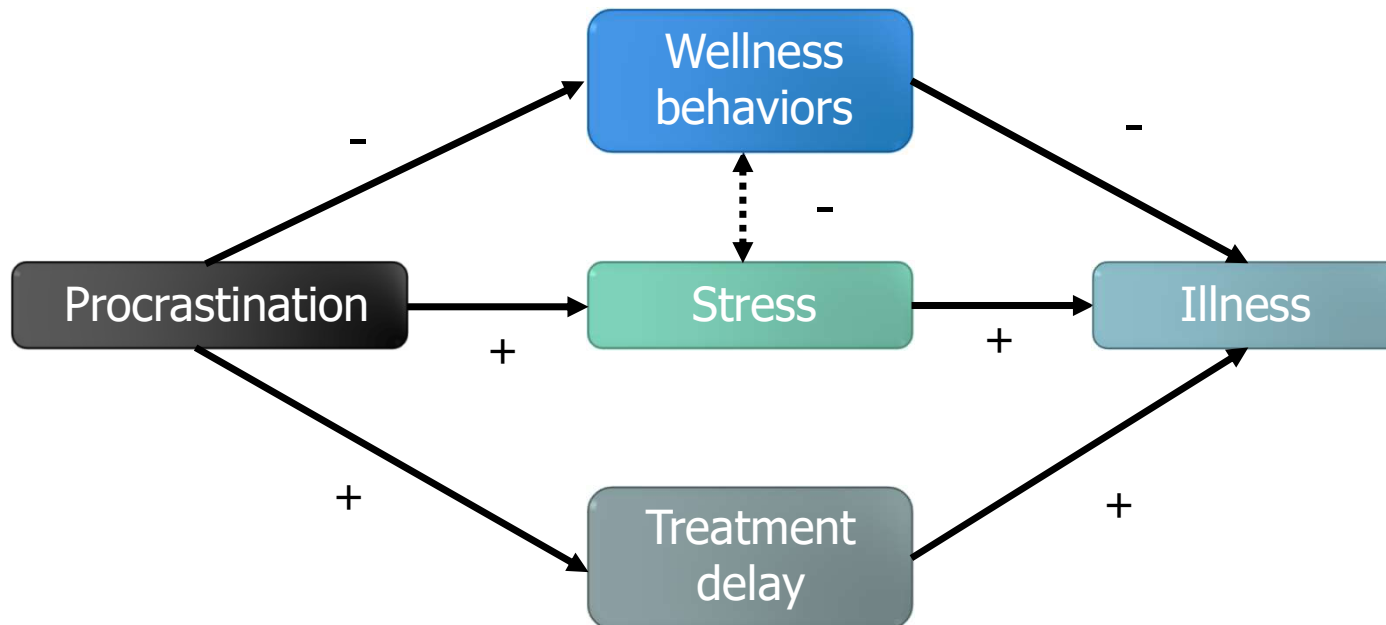


Figure 1. Proposed mediational model of the procrastination-illness relationship.

Sirois, F. M., Melia-Gordon, M.L., & Pychyl, T. A. (2003). "I'll look after my health, later": An investigation of procrastination and health. *Personality and Individual Differences*, 35(5), 1167-1184



# PROCRASTINATION-HEALTH MODEL

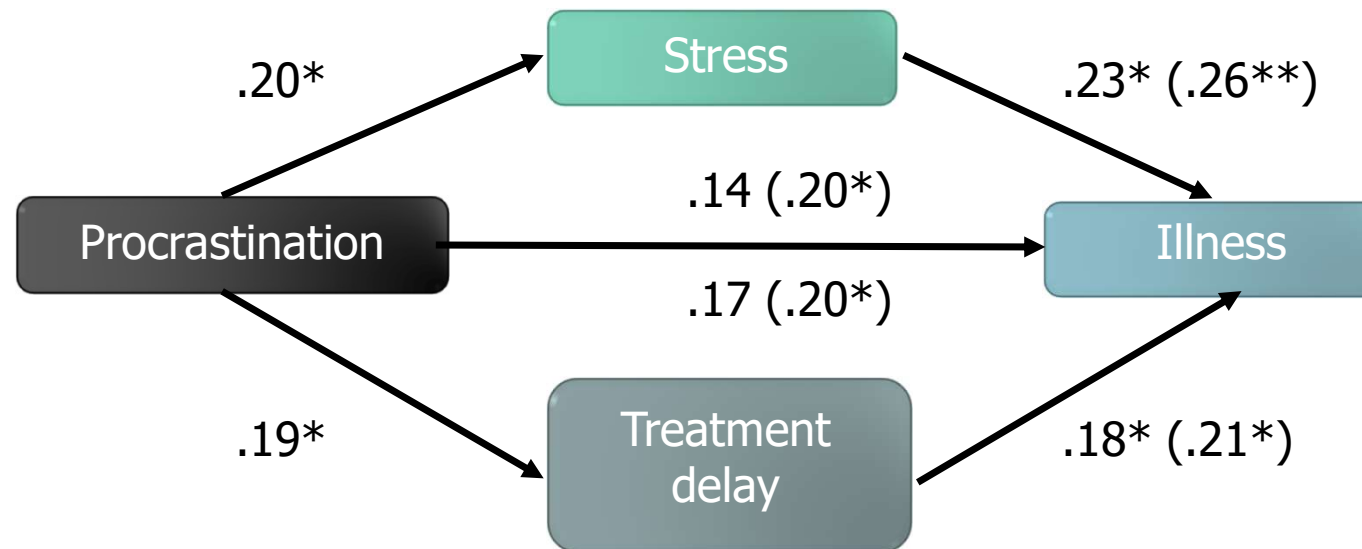
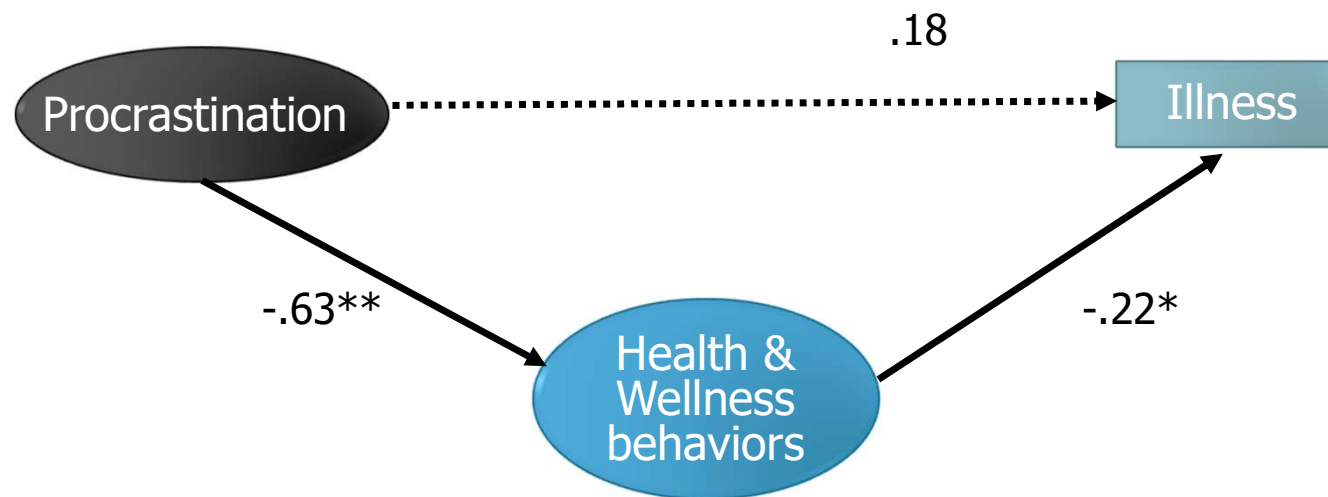


Figure 2. Revised mediational model of the procrastination-illness relationship showing significant paths and the corresponding standardized regression coefficients. ( $N = 122$ )

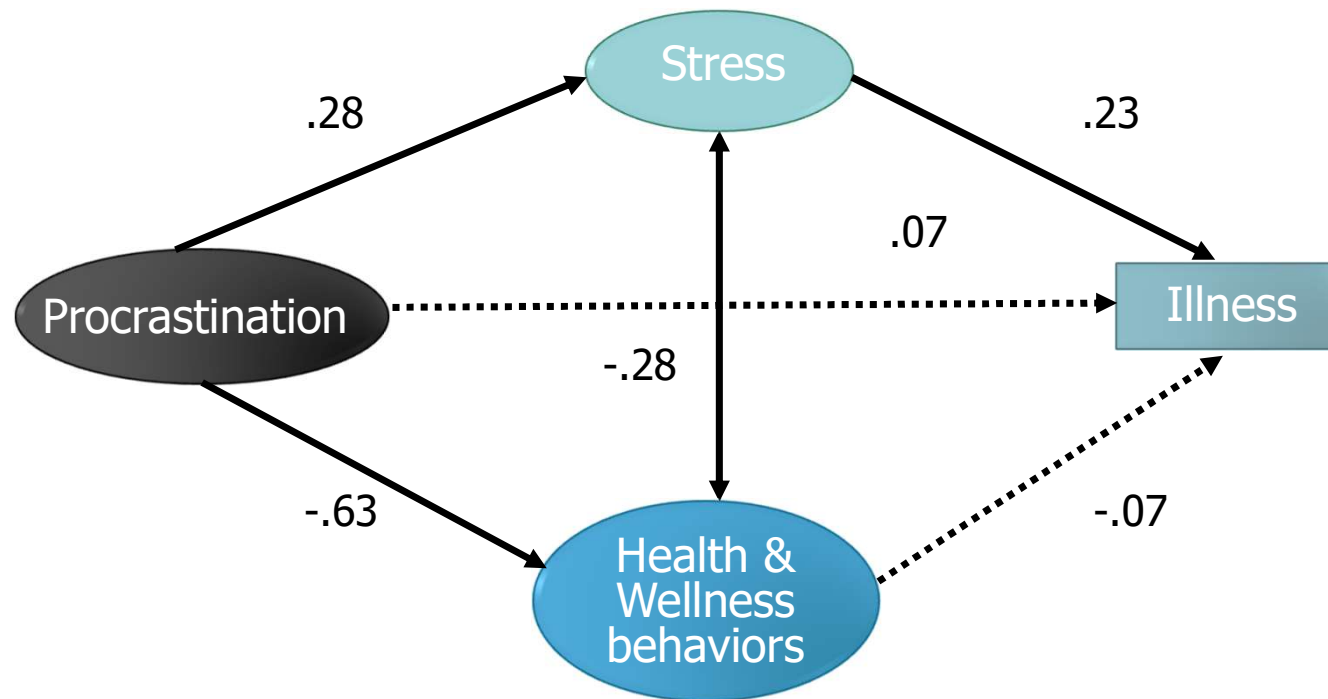
# “I’LL LOOK AFTER MY HEALTH, LATER”, REDUX



$N = 254$  Community-dwelling adults

Sirois, F. M. (2007). “I’ll look after my health, later”: A replication and extension of the procrastination-health model with community-dwelling adults. *Personality and Individual Differences*, 43, 15-26.

# “I’LL LOOK AFTER MY HEALTH, LATER”, REDUX

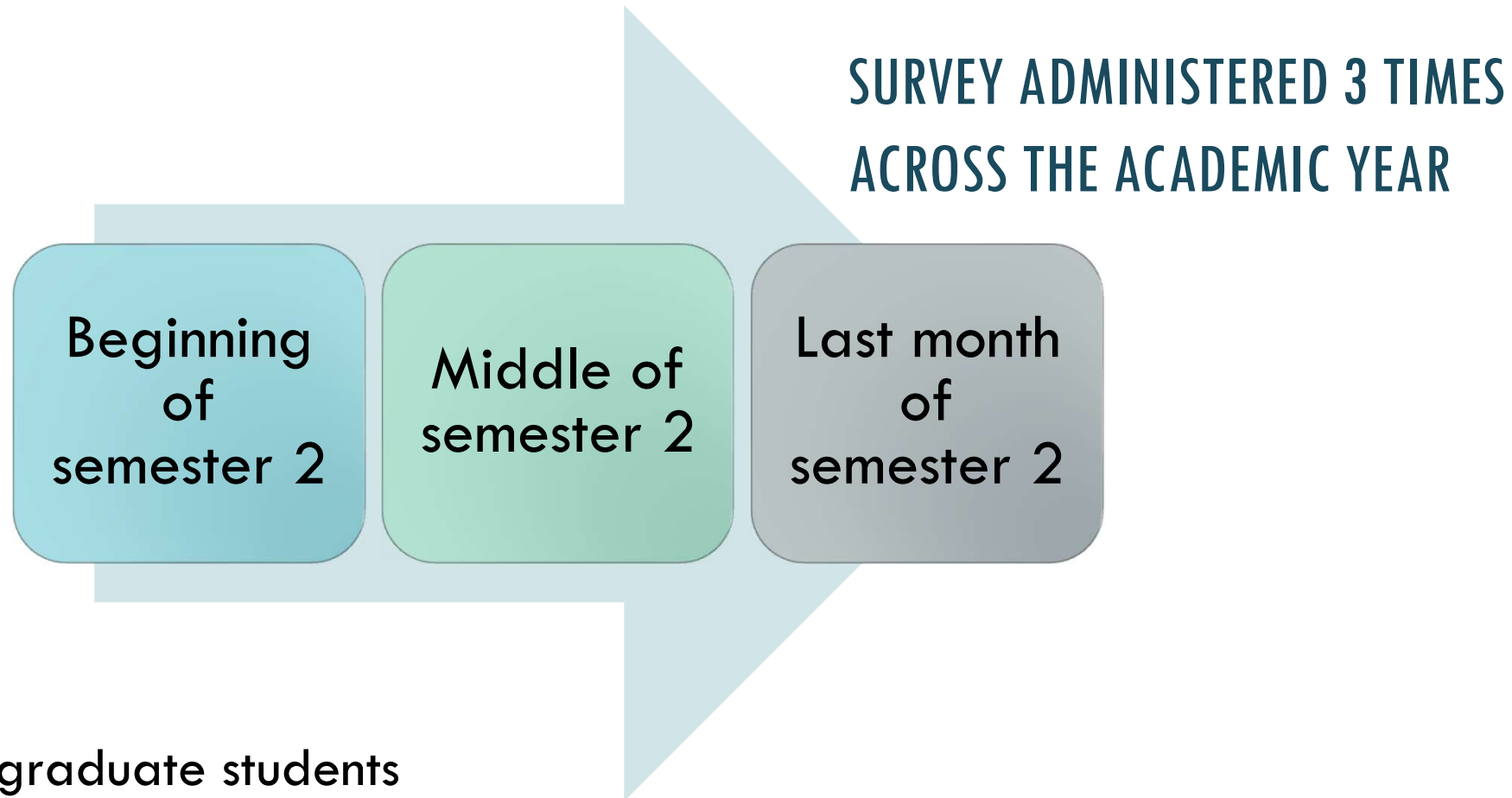


$N = 254$  Community-dwelling adults

Sirois, F. M. (2007). “I’ll look after my health, later”: A replication and extension of the procrastination-health model with community-dwelling adults. *Personality and Individual Differences*, 43, 15-26.

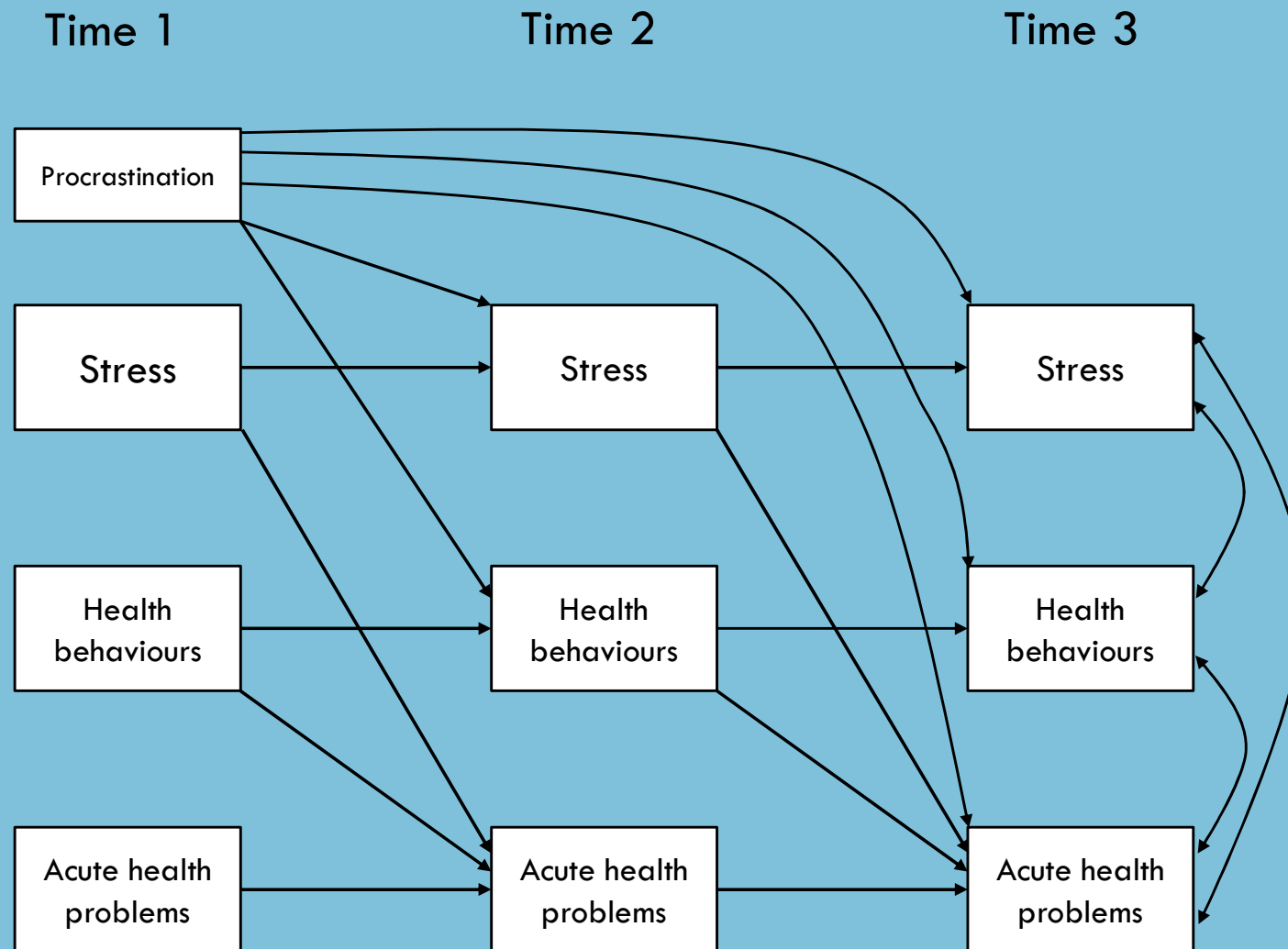


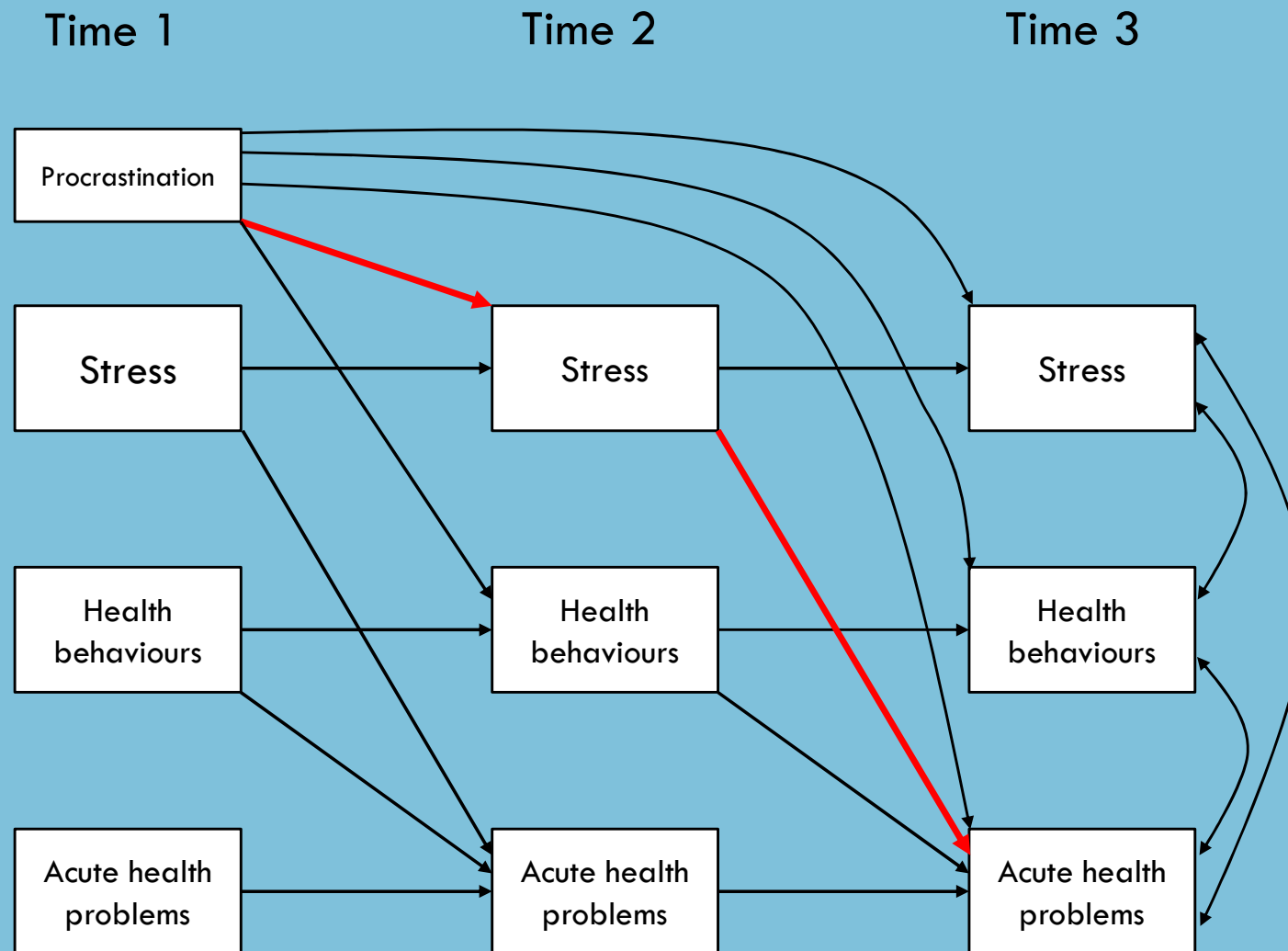
# LONGITUDINAL TEST OF THE PROCRASTINATION-HEALTH MODEL



**$N = 379$  Undergraduate students**

Sirois, F. M., Stride, C., & Pychyl, T. A. (In revision). *A longitudinal test of the procrastination-health model*. Manuscript submitted to the *European Journal of Personality*.

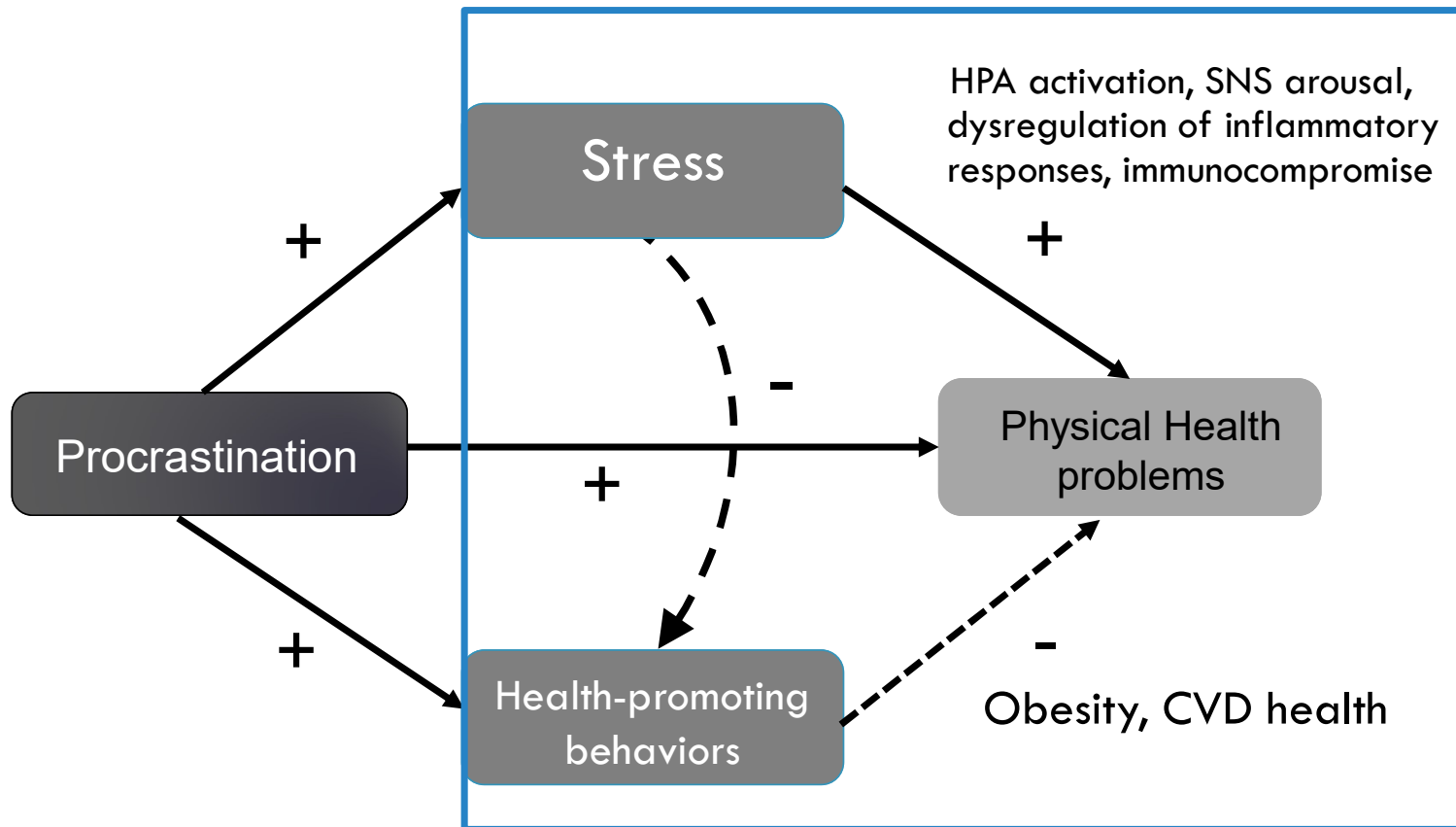






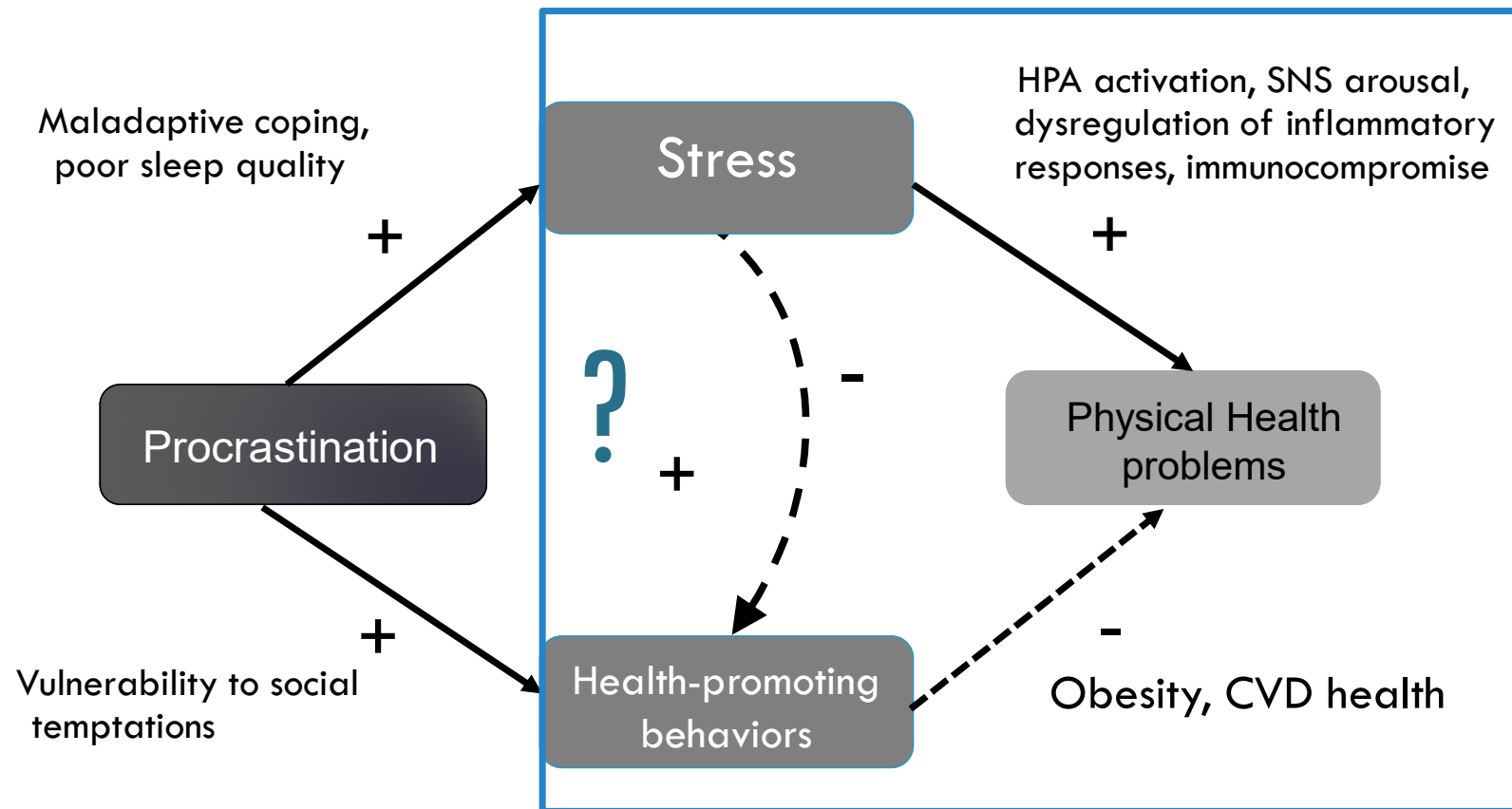
# PROCRASTINATION-HEALTH MODEL

(SIROIS ET AL., 2003; SIROIS, 2007)



# PROCRASTINATION-HEALTH MODEL

(SIROIS ET AL., 2003; SIROIS, 2007)



# PROCRASTINATION & MALADAPTIVE COPING

## Less Adaptive or More Maladaptive? A Meta-analytic Investigation of Procrastination and Coping

FUSCHIA M. SIROIS<sup>1,2\*</sup> and RYAN KITNER<sup>1</sup>

Average  
correlation = .31  
N = 4,201

Table 4. Meta-analysed bivariate correlations between procrastination, adaptive and maladaptive coping across 14 samples (total N=4201)

Study	N	r adaptive coping	95% CI	r maladaptive coping	95% CI
1. Unpublished data set	594	-.14	[-0.22, -0.06]	.33	[0.25, 0.40]
2. Unpublished data set	207	-.16	[-0.30, -0.02]	.38	[0.25, 0.51]
3. Unpublished data set	980	-.31	[-0.37, -0.25]	.46	[0.40, 0.52]
4. Unpublished data set	221	-.20	[-0.33, -0.07]	.27	[0.14, 0.40]
5. Unpublished data set	85	-.11	[-0.32, 0.10]	.31	[0.11, 0.51]
6. Unpublished data set	294	-.42	[-0.52, -0.32]	.31	[0.20, 0.42]
7. Unpublished data set	403	-.23	[-0.33, -0.13]	.29	[0.20, 0.38]
8. Veresova (2013)	194	-.24	[-0.38, -0.10]	.42	[0.29, 0.54]
9. Dunn (2000), unpublished thesis	116	-.29	[-0.47, -0.11]	.26	[0.08, 0.44]
10. Dumitrescu et al. (2011)	198	-.58	[-0.69, -0.47]	—	—
11. Aziz (2013), unpublished thesis	500	-.03	[-0.12, 0.06]	.16	[0.07, 0.25]
12. Hsin Chun Chu et al. (2005)	230	-.05	[-0.18, 0.08]	.23	[0.10, 0.36]
13. Corace (1998), unpublished thesis	75	-.13	[-0.36, 0.10]	.38	[0.17, 0.59]
14. Ferrari and Diaz-Morales (2013)	104	-.25	[-0.44, -0.06]	—	—
15. Flett et al. (1995)	156	-.41	[-0.55, -0.27]	.21	[0.06, 0.36]
Meta-analysis results		-.24	[-0.33, -0.16]	.31	[0.25, 0.37]

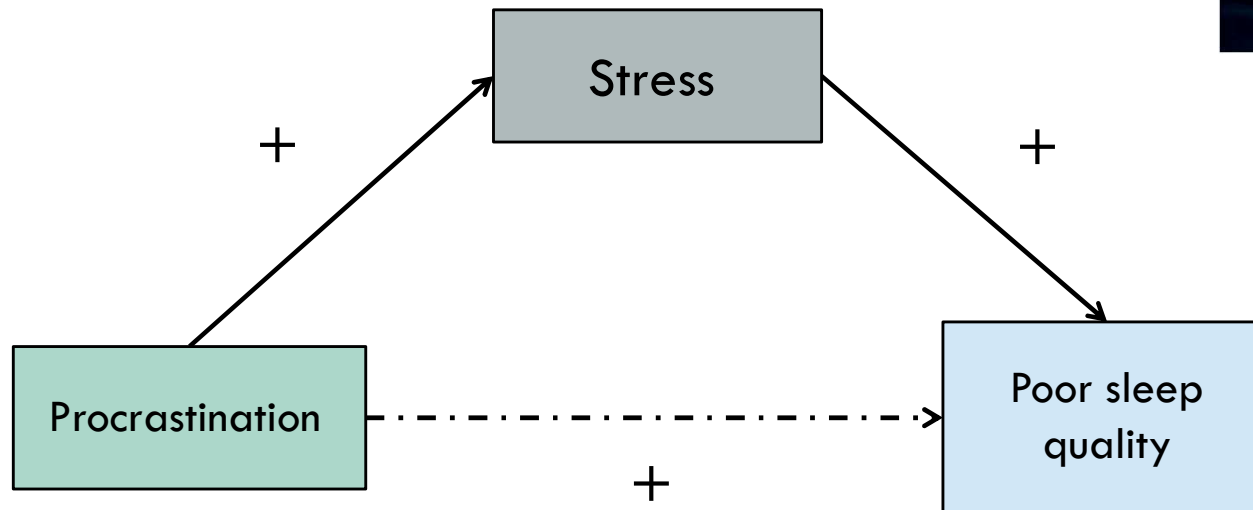
# PROCRASTINATION, STRESS, AND SLEEP QUALITY

Tested associations across two student samples

- (Sample 1 = 141; Sample 2 = 339)

Procrastination positively linked to indices of poor sleep quality

- Indirect effects through stress were sig. in 2 samples tested



**Sirois, F. M.,** van Eerde, W., & Argiropoulou, M. I. (2015). Is procrastination related to sleep quality? Testing an application of the procrastination-health model. *Cogent Psychology*, 2 (1).

# PROCRASTINATION & HEALTH BEHAVIOURS

**Time 1:** 211 adults recruited from the community who intended to make a healthy change in the next 6 months

- Mail survey with \$15 CDN incentive.

**Time 2:** 94 people completed in person or telephone interview or mail survey, with \$20 CDN incentive.

- Participants reported their success (or not) in making their intended healthy changes

**Only 53% were successful in making one or more healthy changes**

Procrastination scores were significantly associated with

Health procrastination,  $r = 0.26$ ,  $p < .01$

Social temptations,  $r = 0.22$ ,  $p < .05$

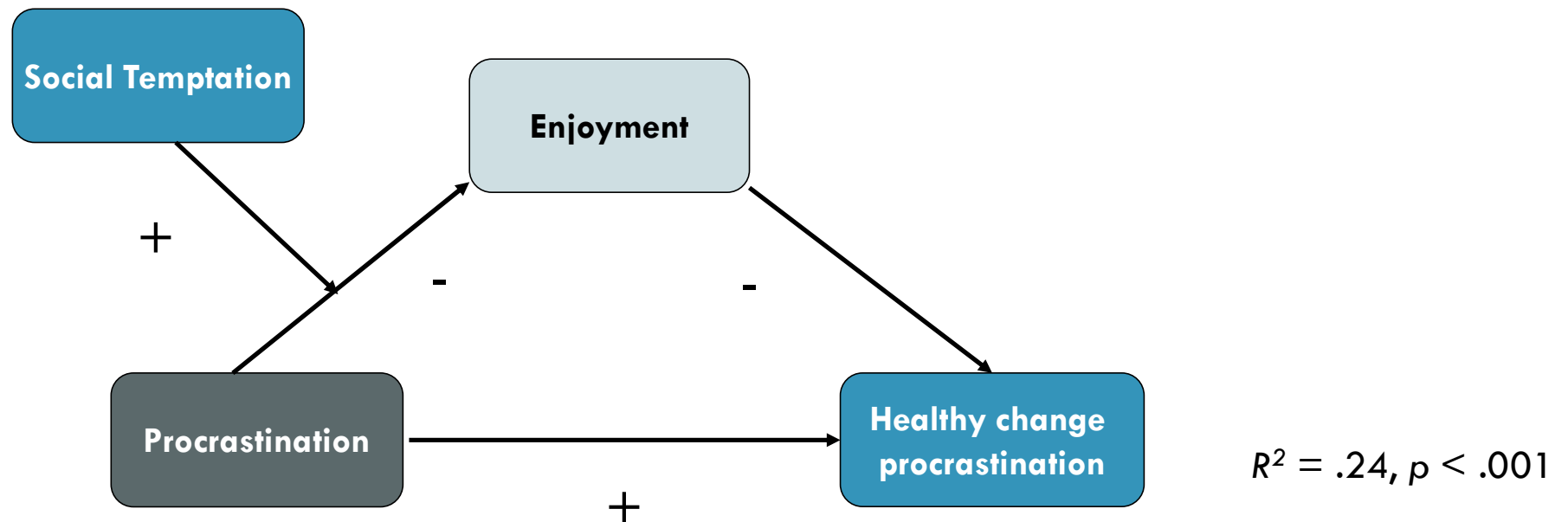
Enjoyment,  $r = -0.29$ ,  $p < .01$

Frustration,  $r = 0.20$ ,  $p < .05$



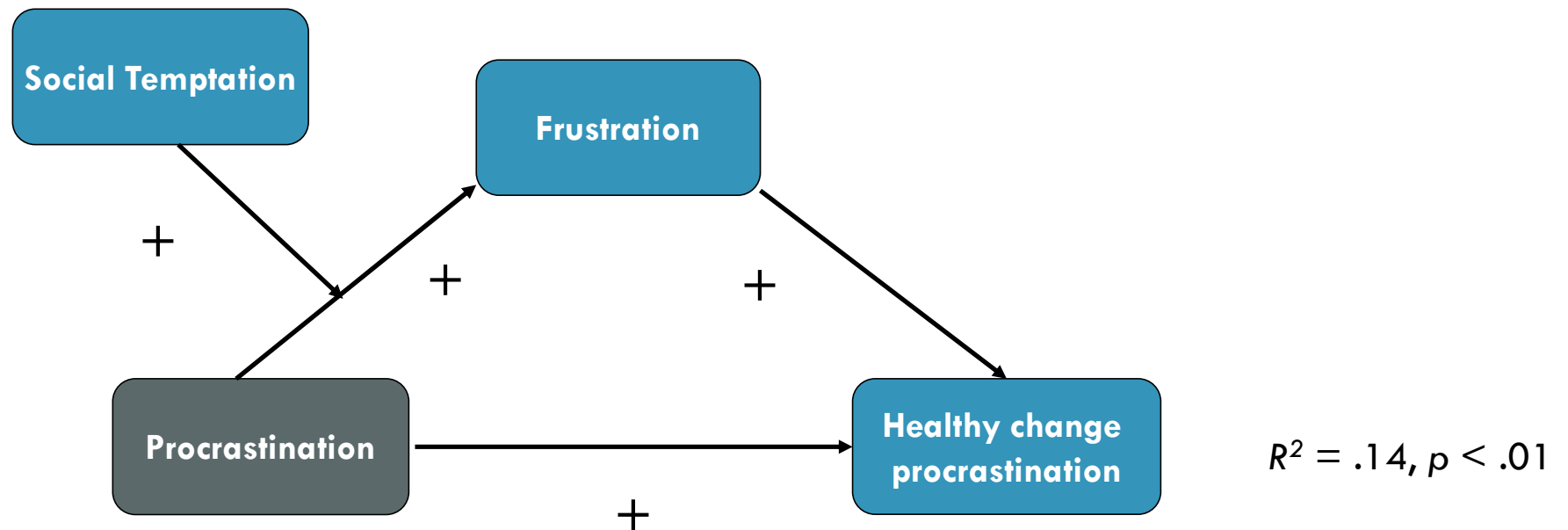


**FIGURE 3: MODERATED MEDIATION MODEL OF THE RELATIONSHIP BETWEEN PROCRASTINATION, SOCIAL TEMPTATION, ENJOYMENT AND HEALTH PROCRASTINATION**



**Sirois, F. M., & Giguère, B. (2018).** Giving in when feeling less good: Procrastination, action control, and social temptations. *British Journal of Social Psychology*.

**FIGURE 4: MODERATED MEDIATION MODEL OF THE RELATIONSHIP BETWEEN PROCRASTINATION, SOCIAL TEMPTATION, FRUSTRATION AND HEALTH PROCRASTINATION**



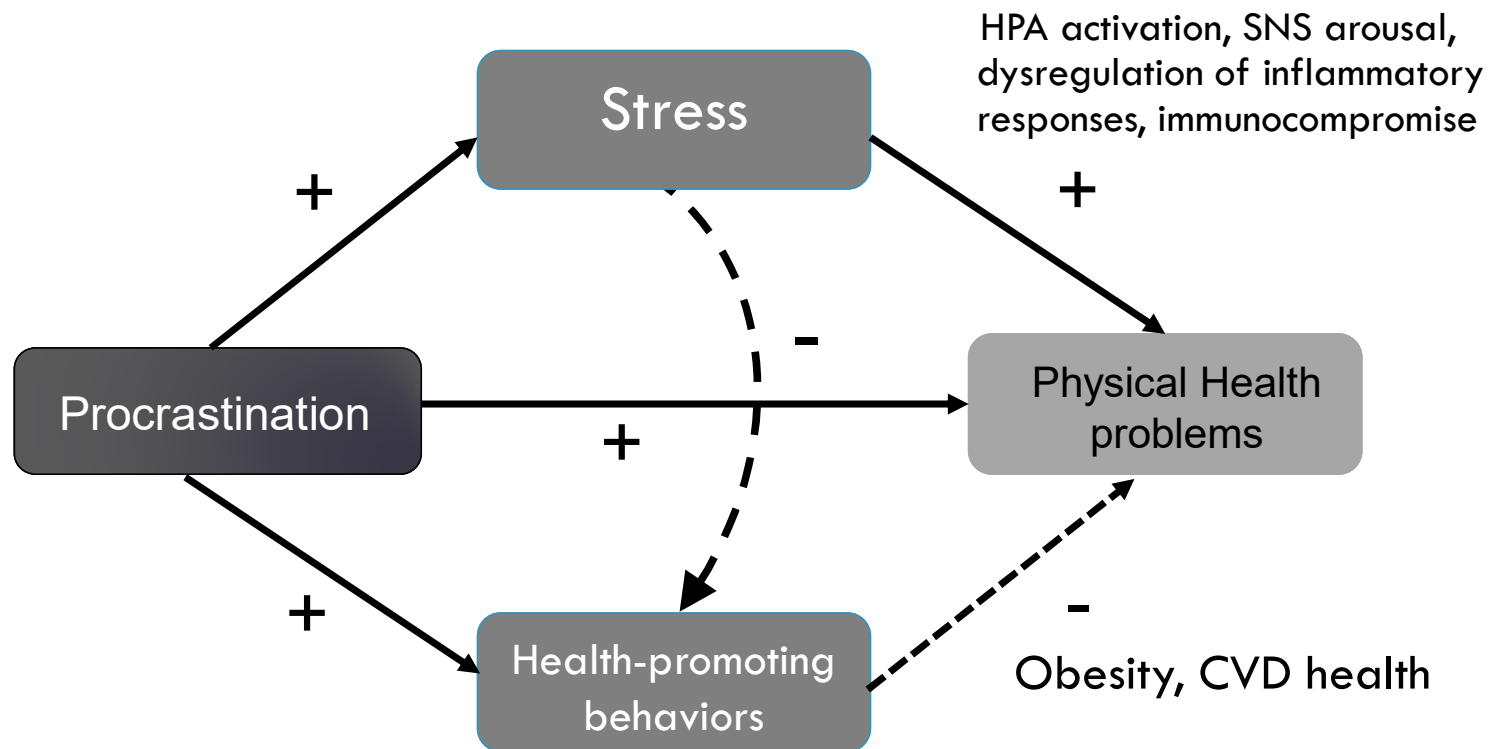
Sirois, F. M., & Giguère, B. (2018). Giving in when feeling less good: Procrastination, action control, and social temptations. *British Journal of Social Psychology*, 57, (2), 404-427

# CUMULATIVE COSTS OF PROCRASTINATION



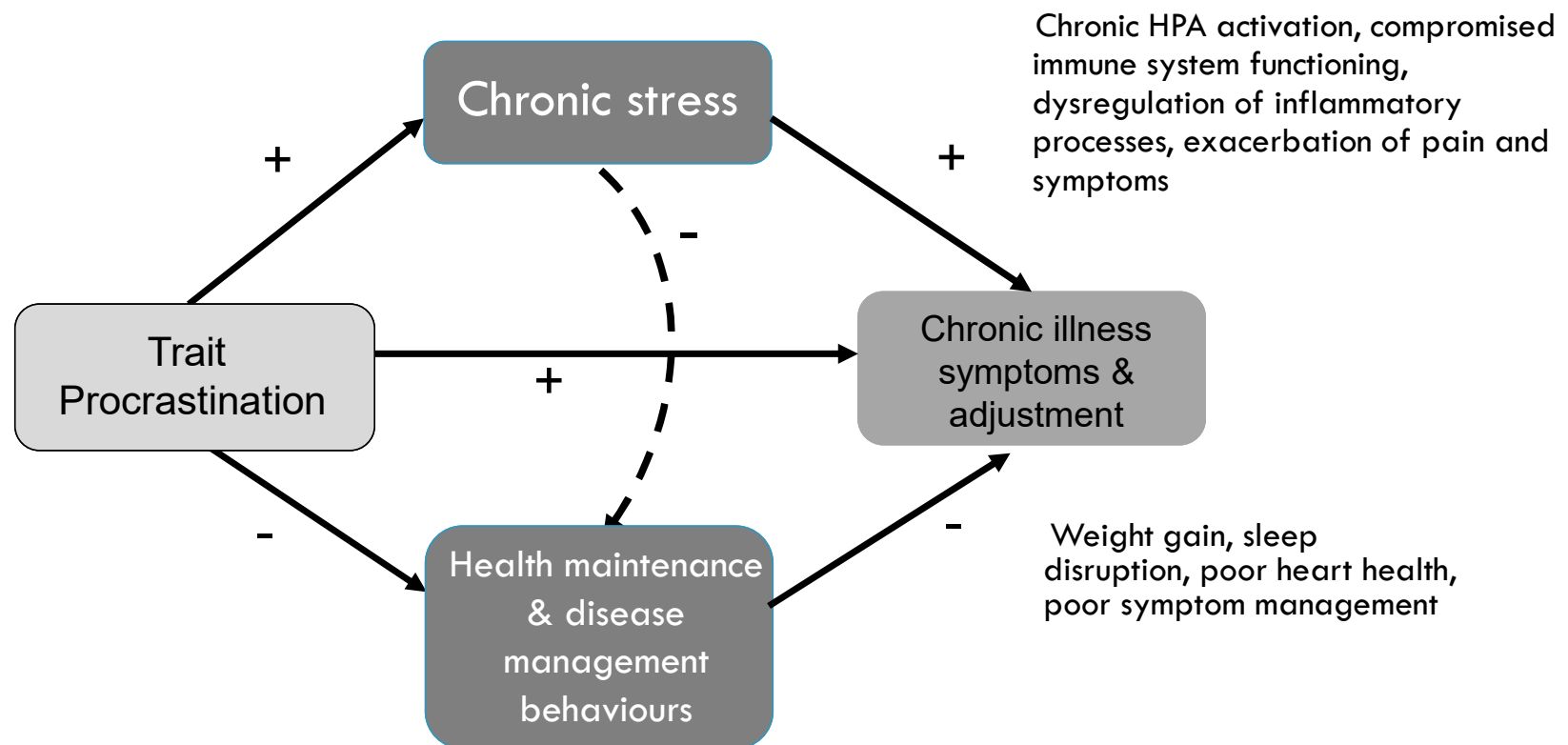
# PROCRASTINATION-HEALTH MODEL

(SIROIS ET AL., 2003; SIROIS, 2007)





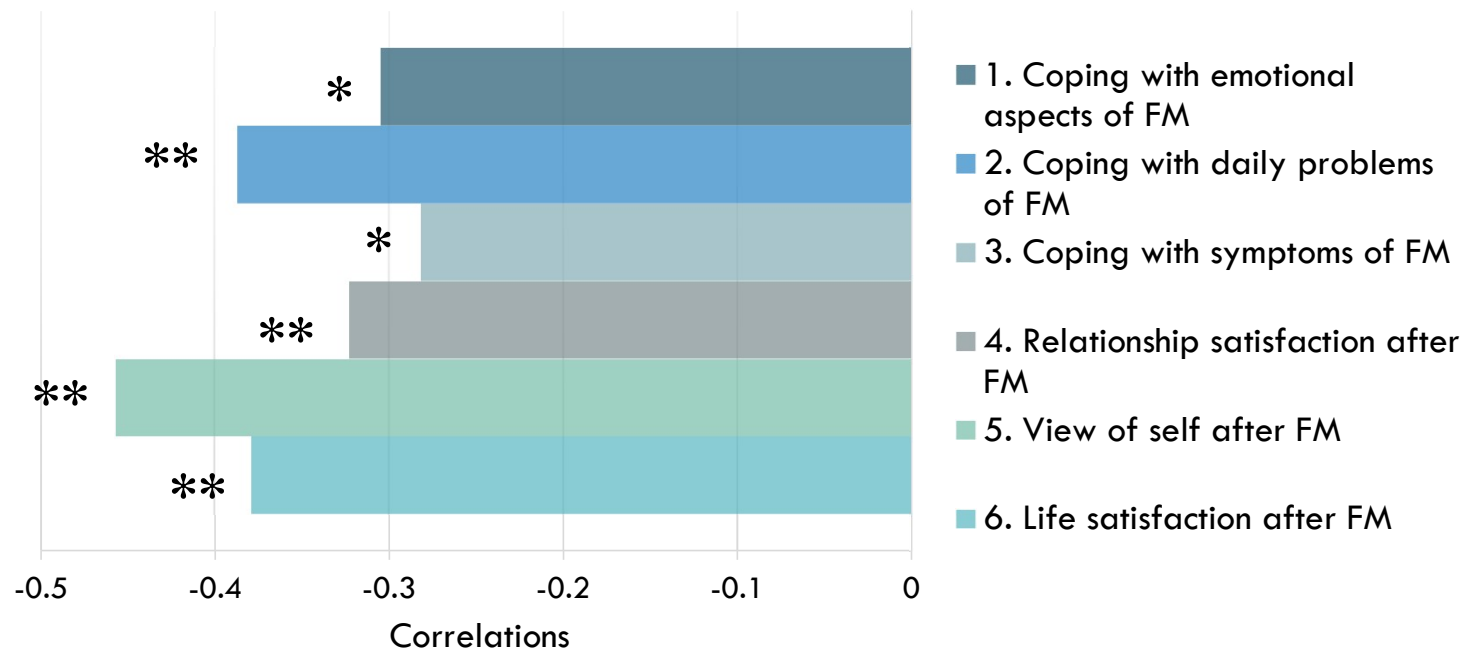
# A TEMPORALLY EXTENDED PROCRASTINATION-HEALTH MODEL ILLUSTRATING THE POTENTIAL LONG-TERM EFFECTS OF PROCRASTINATION ON HEALTH



Sirois, F. M. (2016). Procrastination, stress, and chronic health conditions: A temporal perspective. In F. M. Sirois & T. Pychyl (Eds.), *Procrastination, Health, and Well-Being*: Elsevier.

# PROCRASTINATION & COPING WITH FIBROMYALGIA

72 participants (94% female, M age =42.9) recruited online through Fibromyalgia support groups

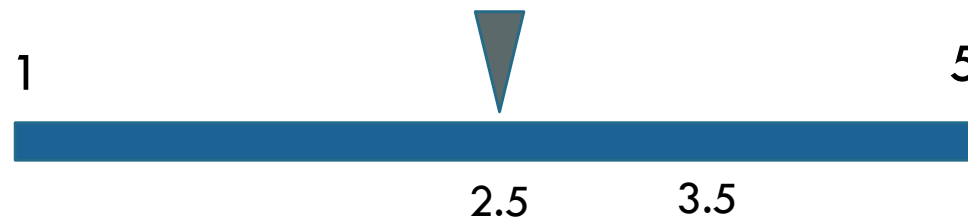
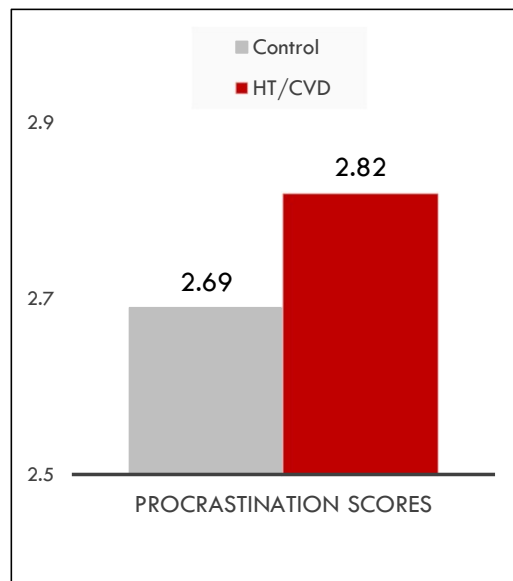


Beauregard, J., Ioachim, G., & Sirois, F. M. (2015). *Trait procrastination negatively impacts coping with fibromyalgia*. Paper presented at the 9th annual Procrastination Research Conference, Bielefeld, Germany.

# IS PROCRASTINATION A VULNERABILITY FACTOR FOR HYPERTENSION AND CARDIOVASCULAR DISEASE?

980 community adults → **182 with self-reported HT/CVD**

798 screened for other health conditions → **564 healthy controls**



**Risk ↑63 %**

**Sirois, F. M. (2015).** Is procrastination a vulnerability factor for hypertension and cardiovascular disease? Testing an extension of the procrastination-health model. *Journal of Behavioral Medicine*, 38, 578-589



## SMALL BUT ROUTINELY CONSEQUENTIAL EFFECTS?

Effect sizes from personality and important outcomes such as health are often small.

BUT when aggregated at the population level, can be considered *large* in practical terms:  
*Routinely consequential* (Ozer & Benet-Martinez, 1983)



### 3. WHY DO PEOPLE PROCRASTINATE?





**PROCRASTINATION = POOR MOOD MANAGEMENT**

# TEMPORAL MOOD REGULATION VIEW OF PROCRASTINATION

Procrastination and the Priority of Short-Term Mood Regulation: Consequences for Future Self

Fuschia Sirois<sup>1\*</sup> and Timothy Pychyl<sup>2</sup>

Priority of short-term mood regulation is central to understanding procrastination (Sirois & Pychyl, 2013).

**People procrastinate on tasks that are:**

- boring, frustrating, unpleasant, lacking meaning and/or structure, etc.

**Why?**

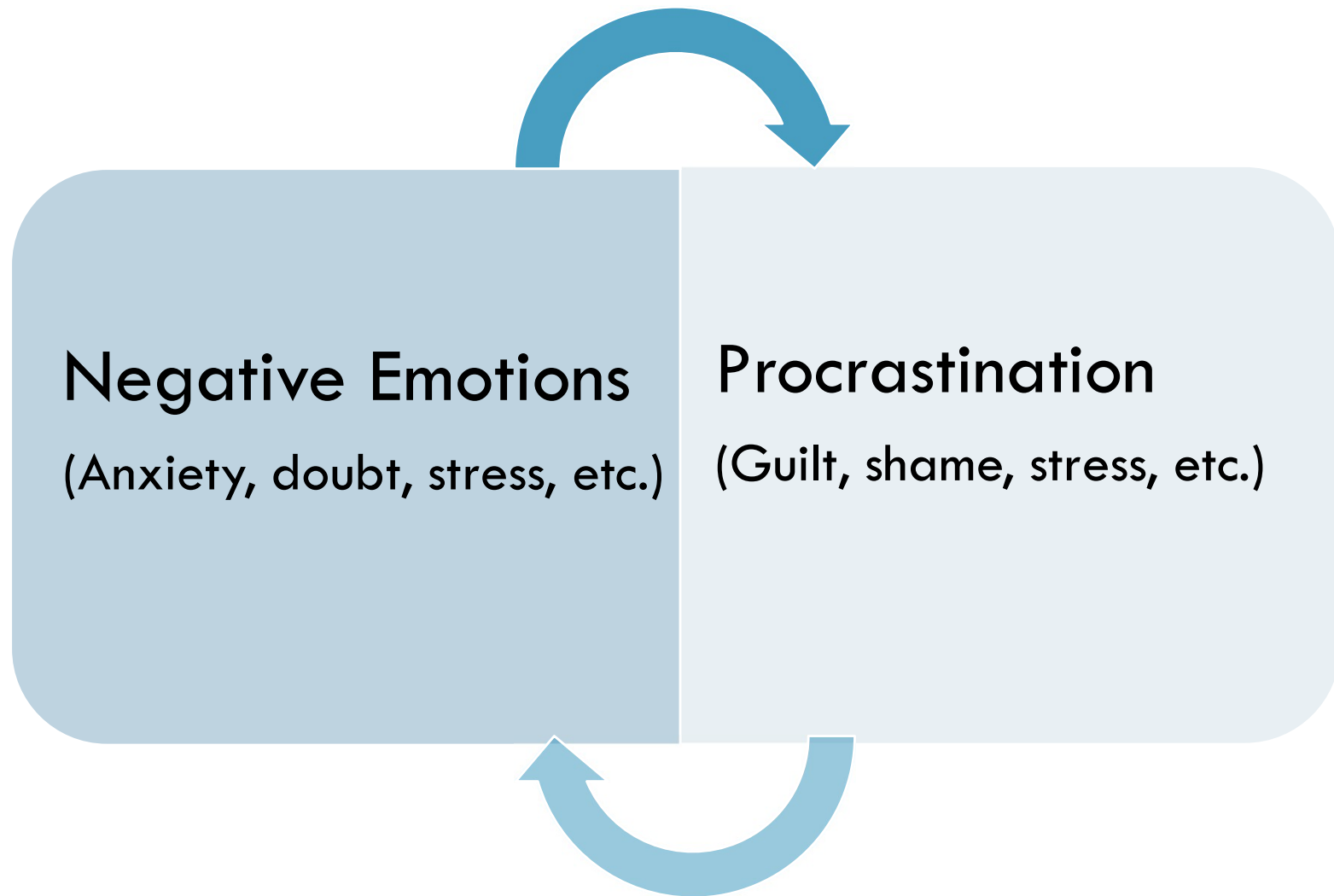
- aversive tasks = negative mood
- procrastination → avoid negative task → improves mood = short-term mood repair



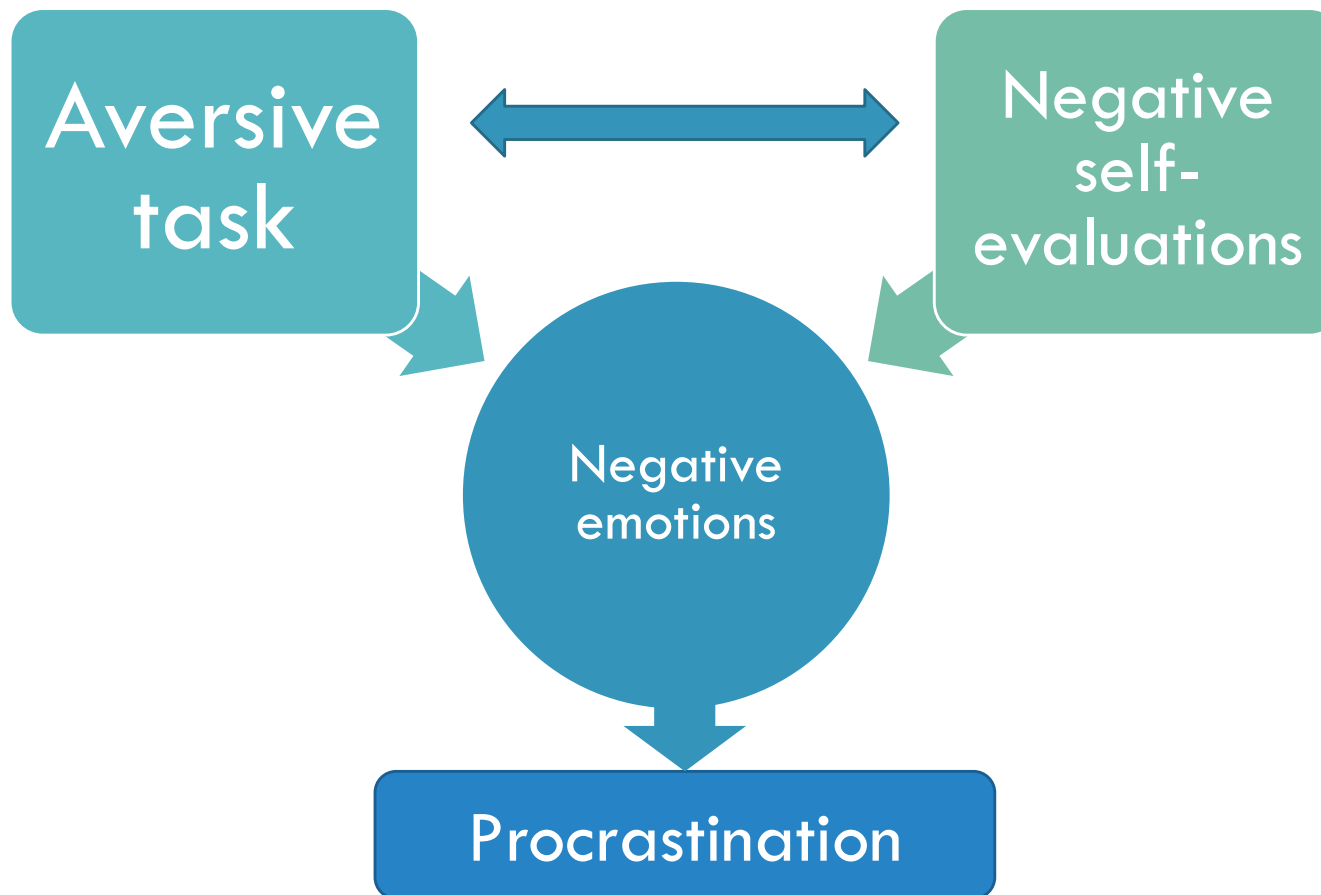
# PROCRASTINATION AS POOR EMOTIONAL REGULATION

- Disengaging from an aversive or troubling task provides immediate hedonic shift in mood
  - External form of mood regulation akin to avoidant coping
- This “relief” is temporary
  - Adaptive emotion regulation has lasting effects – mood repair via procrastination does not
- BUT the relief afforded by procrastinating is reinforcing





## TRANSACTIONAL NEGATIVE EMOTIONS







“Why didn’t I start earlier?”

“Why can’t I finish things I start?”

“I’m such a procrastinator, I’ll  
never reach my goals.”

“I’m letting myself down.”

Flett, G. L., Stainton, M., Hewitt, P., Sherry, S., & Lay, C. (2012). Procrastination automatic thoughts as a personality construct: An analysis of the procrastinatory cognitions inventory. *Journal of Rational-Emotive & Cognitive-Behavior Therapy*, 1-14.

# PROCRASTINATION. BRAIN MORPHOLOGY, & EMOTION REGULATION

The neural substrates of procrastination: A voxel-based morphometry study

Yue Hu<sup>a</sup>, Peiwei Liu<sup>a</sup>, Yiqun Guo<sup>a</sup>, Tingyong Feng<sup>a,b,\*</sup>

<sup>a</sup> Research Center of Psychology and Social Development, Faculty of Psychology, Southwest University, Chongqing 400715, China

<sup>b</sup> Key Laboratory of Cognition and Personality, Ministry of Education, 400715, China

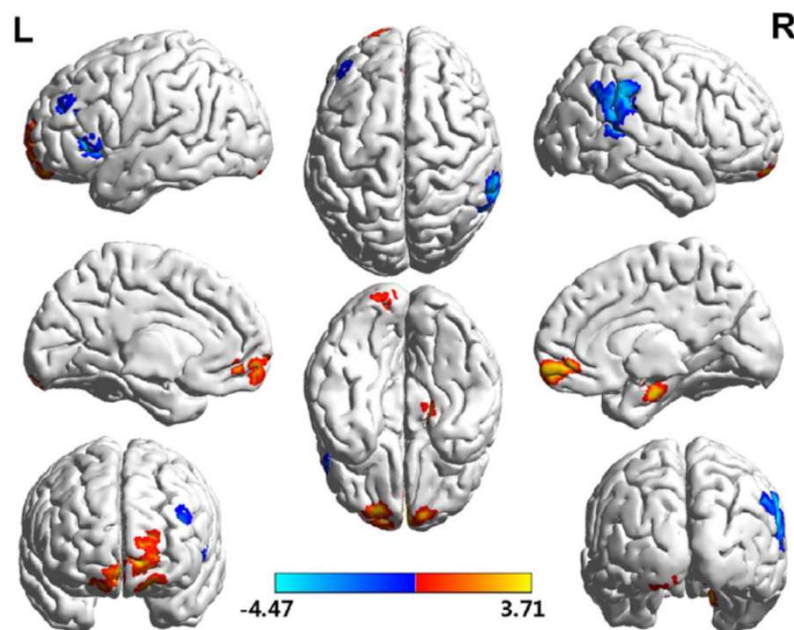


Fig. 1. GM volumes exhibit positive and negative correlation with procrastination ( $p < .05$  corrected, cluster size  $> 74$ ) in sample 1. Results in the panel was corrected using AlphaSim correction at the level of  $p < .05$ . Color bar represents a scale of  $r$  value.

L: Left; R: right.



- Scores on a measure of chronic procrastination were positively associated with grey matter volume of the orbitofrontal cortex (OFC) across two independent samples ( $N = 158$ ;  $N = 108$ ).
- OFC is involved in emotion regulation via connections to the limbic system
- The brains of people who chronically procrastinate show differences in areas related to negative emotion regulation

# ENHANCE EMOTION REGULATION SKILLS TO REDUCE PROCRASTINATION

(ECKERT, EBERT, LEHR, SIELAND, & BERKING, 2016)

- 83 participants: 44 were assigned to the intervention group and 39 to a wait-list control
- Two-week (daily) web-based intervention promoted emotion-regulation (ER) strategies to overcome procrastination.
- Emotion regulation training increased ER skills, and reduced procrastination, by increasing ability to modify and to tolerate aversive emotions.

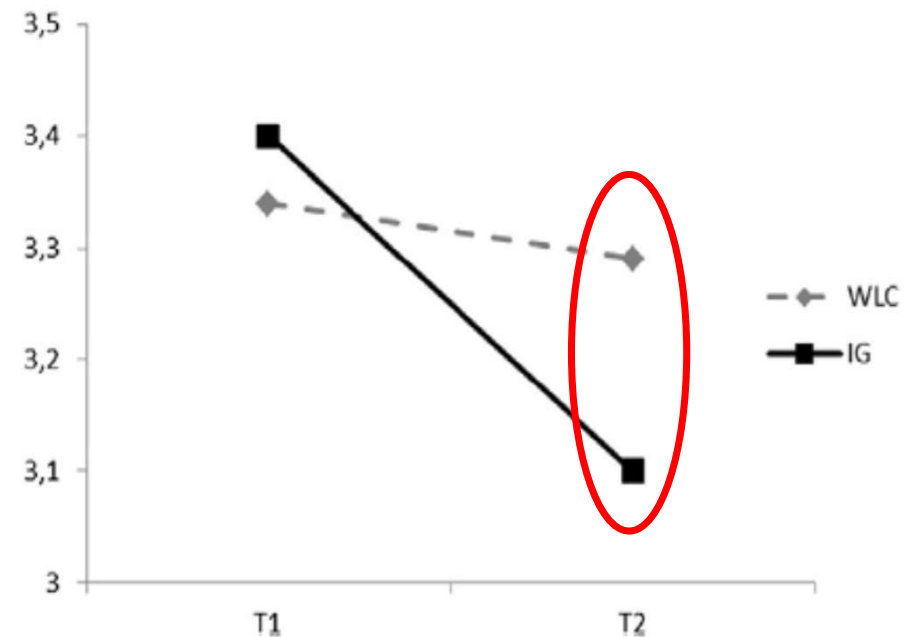


Fig. 1. Comparison of intervention group (IG) and waiting list control (WLC) group on development of procrastination from baseline (T1) to post-measurement (T2).



## 4. HOW CAN WE REDUCE PROCRASTINATION?



# Meaning



Image: Ethan Sees from Pexels

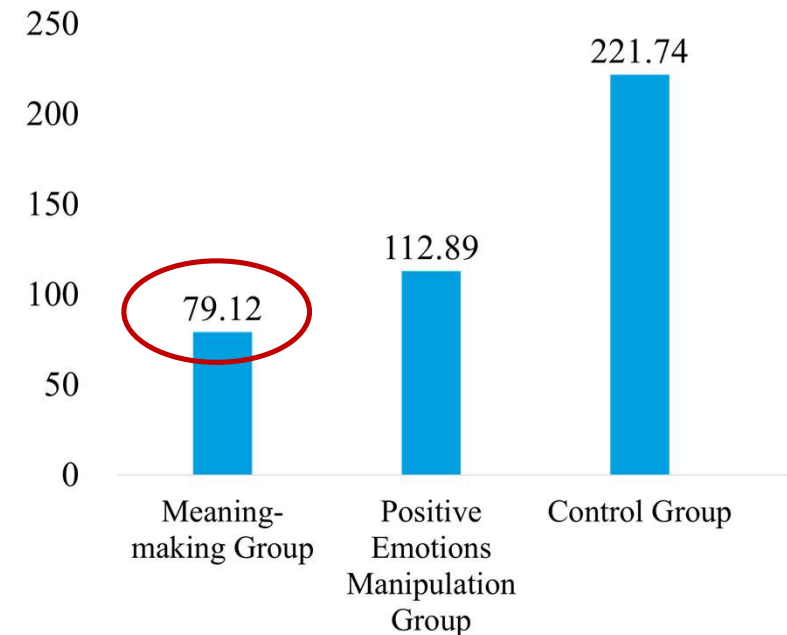
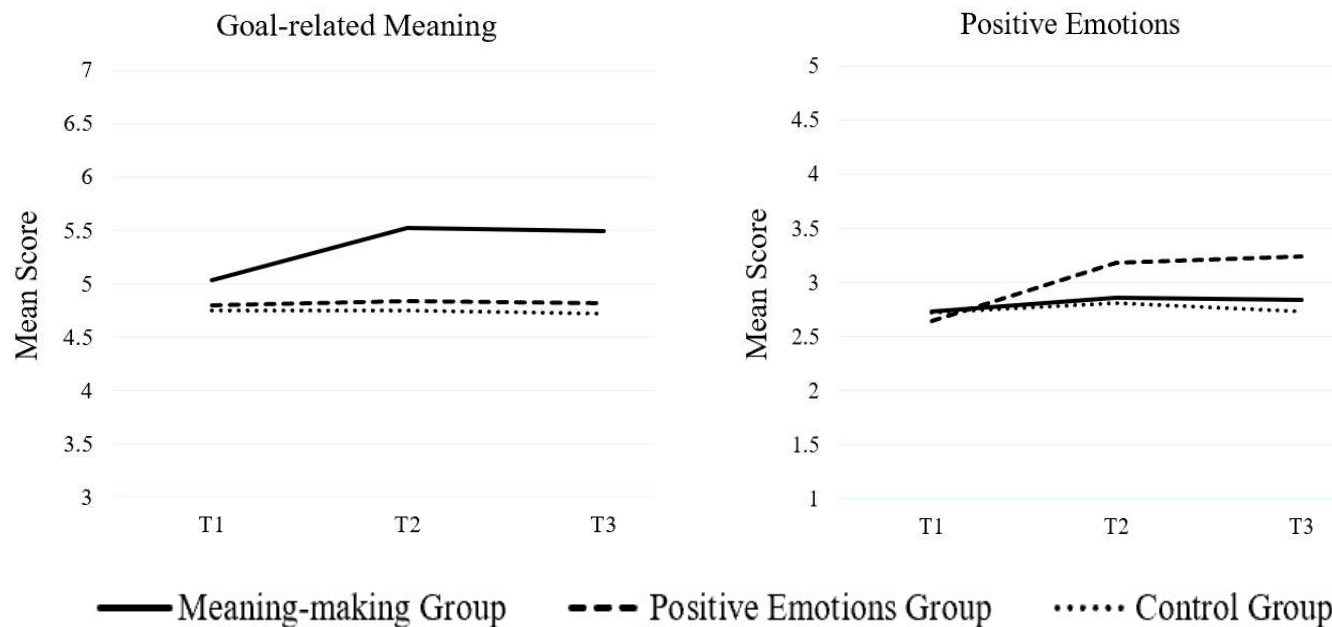
# CAN INCREASING GOAL MEANING REDUCE PROCRASTINATION?

- 273 participants (Mage = 28.00, SD = 8.80, 51.3% Female)
- Experimental 2 time point study, random assignment to one of three conditions.
- Write about a challenging goal that they were at risk for procrastinating
- Follow-up 36-48 hours later, reported time procrastinated



Sisi Yang

Time Spent Procrastinating



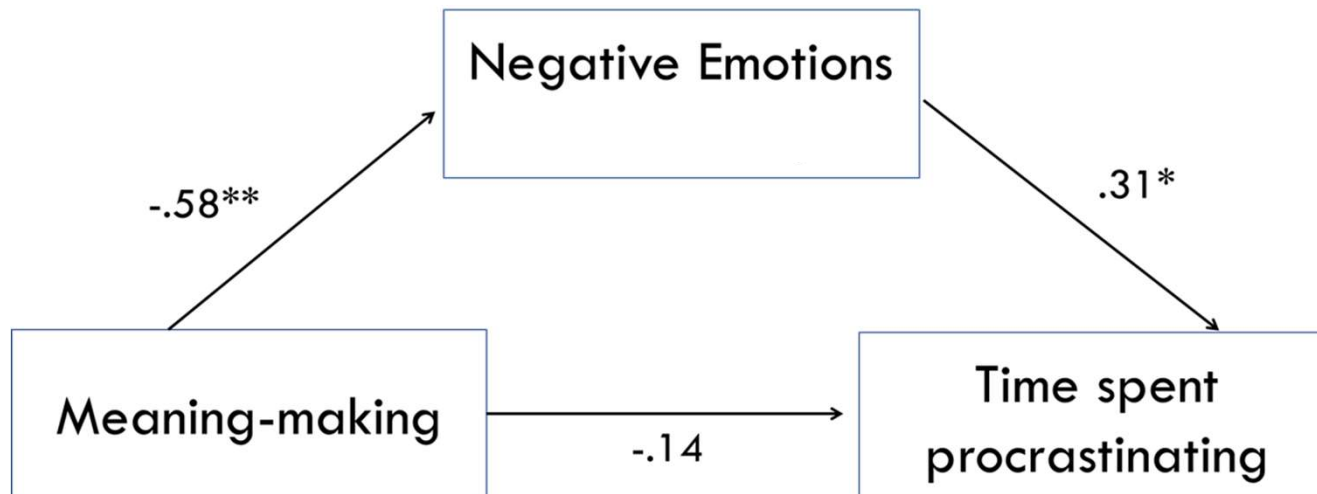


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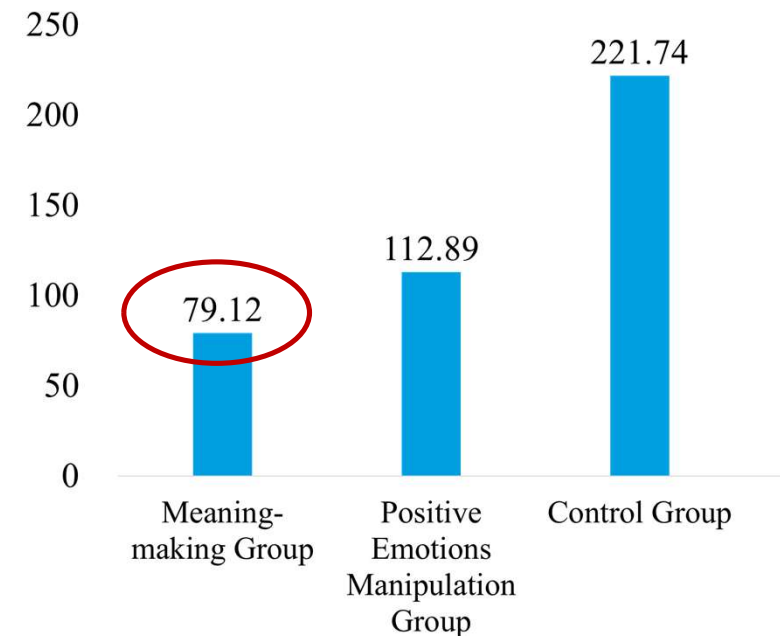
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Sisi Yang



Time Spent Procrastinating



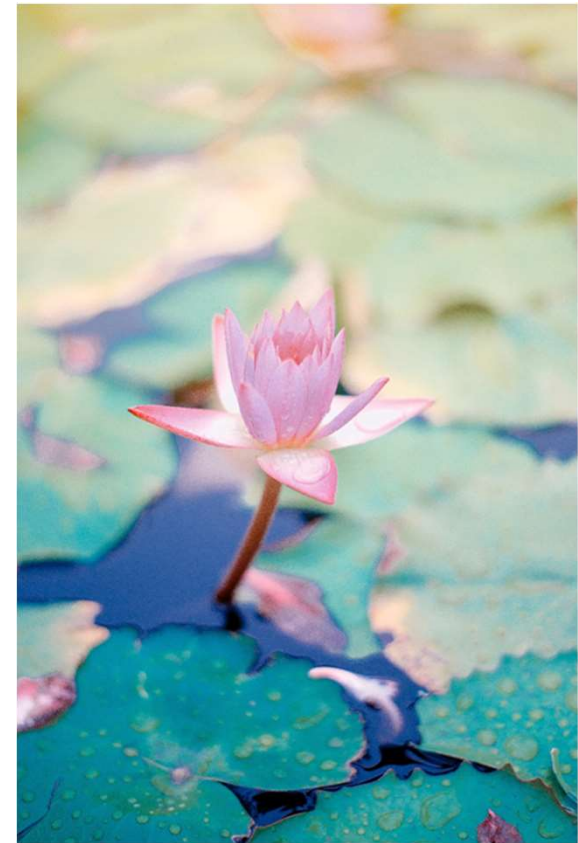


SELF-

C<sub>3</sub> O<sub>1</sub> M<sub>3</sub> P<sub>3</sub> A<sub>1</sub> S<sub>1</sub> S<sub>1</sub> I<sub>1</sub> O<sub>1</sub> N<sub>1</sub>

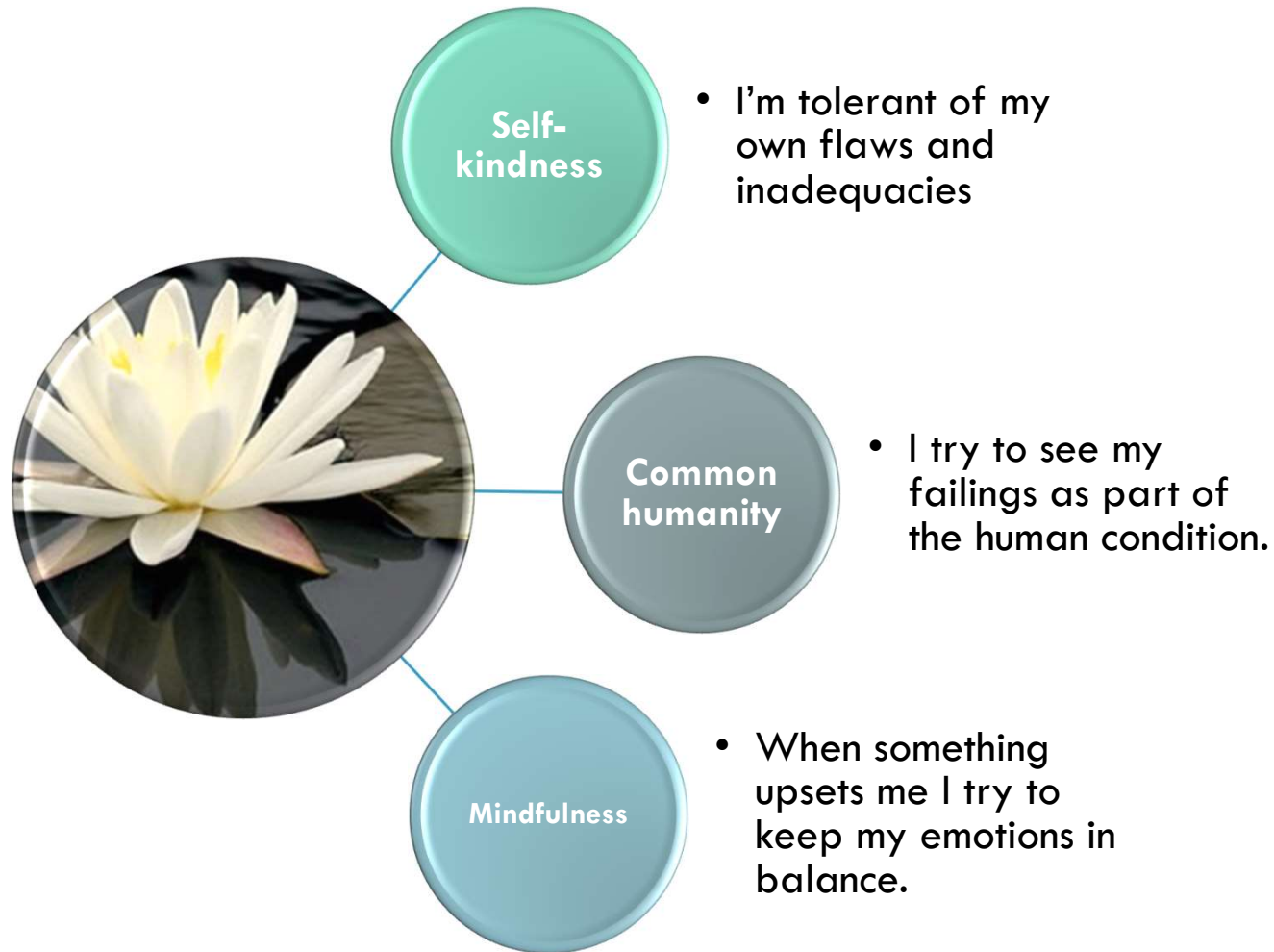
# SELF-COMPASSION

Taking a kind and understanding stance toward oneself in instances of pain or failure rather than being harshly self-critical (Neff, 2003).





# SELF-COMPASSION (NEFF, 2003)



# LOW SELF-COMPASSION (NEFF, 2003)



# PROCRASTINATION & SELF-COMPASSION

- **Study 1:** 145 undergraduate students (M age 21.3, 74.5 % F), paper survey
- **Study 2:** 190 undergraduate students (M age 22.4, 74.2 % F), computer survey in lab, 2 weeks apart
- **Study 3:** 339 undergraduate students (M age 21.7, 81.4 % F), online survey
- **Study 4:** 94 community-dwelling adults (M age 34.3, 67.5 % F), paper survey

Sirois, F. M. (2014). Procrastination and stress: Exploring the role of self-compassion. *Self and Identity*, 13 (2), 128-145



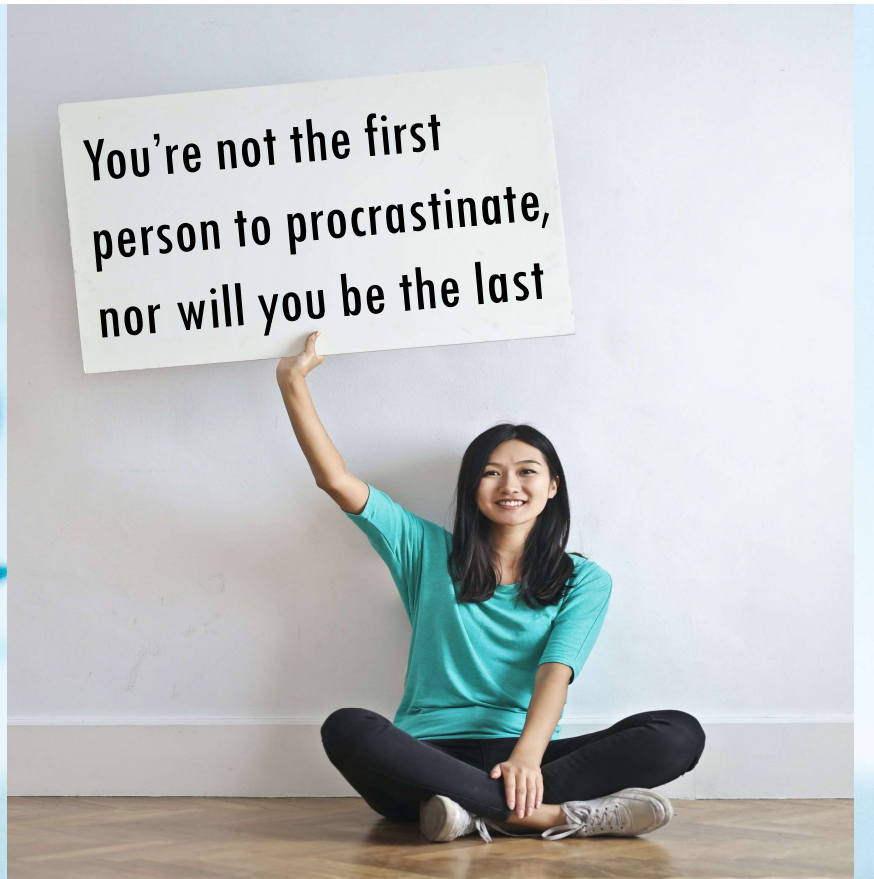
# CORRELATIONS ACROSS STUDIES

	Study	Self-compassion	Stress	Brooding	Perceived Health	Wellness behaviours
Procrastination	1 GPS AIP-R	-.36** -.38**	.43** .46**	---	---	---
T1 T2	2	-.29**	.35**	.24**	-.19** -.21**	-.27** -.34**
	3	-.27**	.32**	.13*	-.25**	-.35**
T1 T2	4	-.22*	.31** .22*	---	---	-.25** -.23**
Self-compassion	1	---	-.63**	---	---	---
T1 T2	2	---	-.59**	-.66**	.27** .24**	.29** .33**
	3	---	-.63**	-.52**	.27**	.24**
T1 T2	4	---	-.36** -.61**	---	---	.31** .37**

a sig. negative average correlation between procrastination and self-compassion,  $r = -.31$  (CI = -.38/ -.23),  $r < .001$ ,  $Q(3) = 2.145$ , ns.



C<sub>3</sub> O<sub>1</sub> M<sub>3</sub> P<sub>3</sub> A<sub>1</sub> S<sub>1</sub> S<sub>1</sub> I<sub>1</sub> O<sub>1</sub> N<sub>1</sub>





# UNDERSTANDING AND REDUCING PROCRASTINATION AND ITS TOLL ON HEALTH AND WELL-BEING

## Context dependency of procrastination?

- Does vulnerability for procrastination increase in situations where background levels of stress and difficulty are high?
  - Those whose coping resources are at or near capacity
  - Those with chronic health conditions, disabilities, or background and/or chronic life stressors
- If so, then provision of additional coping and/or emotion regulation resources could help reduce procrastination



# MAKING EMOTIONAL MOUNTAINS OUT OF MOLEHILLS?

Faulty affective forecasting as a precursor to procrastination

EXPECTATION



REALITY



## Summary

- **Procrastination is harmful form of delay that reflects self-regulation failure and prioritising short-term mood regulation**
- **Procrastination can take a toll on health and well-being via poor health behaviours and increased stress**
- **Difficulties regulating negative task-related emotions is at the core of procrastination**
- **Approaches that show promise for reducing procrastination include meaning-making and self-compassion**



## WANT TO KNOW MORE?



Are you a procrastinator?

Test yourself here:

[https://www.mindtools.com/pages/article/newHTE\\_99.htm](https://www.mindtools.com/pages/article/newHTE_99.htm)

What procrastination does to your body:

<https://www.youtube.com/watch?v=ROh5TLC8jzM>

TED-ED animation on why we procrastinate:

<https://ed.ted.com/lessons/why-you-procrastinate-even-when-it-feels-bad>

GreaterGood.com article on self-forgiveness and self-compassion for addressing procrastination:

[https://greatergood.berkeley.edu/article/item/two\\_Counterintuitive\\_ways\\_to\\_stop\\_procrastinating](https://greatergood.berkeley.edu/article/item/two_Counterintuitive_ways_to_stop_procrastinating)



# Understanding & Addressing Procrastination: Implications for Health and Well-being

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Inspiring the extraordinary

Questions?

