ACAPS 18e CONGRÈS INTERNATIONAL 2019

ACAPS MONTPELLIER2021

PERSONALITY AND PHYSICAL ACTIVITY CHANGE IN 9 COHORTS

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Presented by

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Regular PA participation

Heath and Well Being

(Kramer, Erickson, & Colcombe, 2006 ; Pereira, Geoffroy, & Power, 2014 ; Scarmeas et al., 2009 ; Warburton, Katzmarzyk, Rhodes et Shephard, 2007; Warburton et al., 2010)

Regular PA participation

Heath and Well Being

↘ in the risk of

- Mental Heath
- Cognitive functioning
- Chronic diseases
  (e.g., cardiovascular disease, stroke, colon and breast cancer, type 2 diabetes, hypertension)

(Kramer, Erickson, & Colcombe, 2006 ; Pereira, Geoffroy, & Power, 2014 ; Scarmeas et al., 2009 ; Warburton, Katzmarzyk, Rhodes et Shephard, 2007; Warburton et al., 2010)

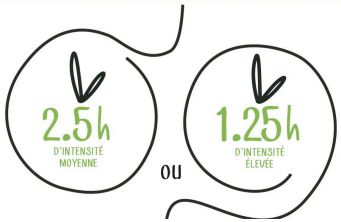
Regular PA participation

Heath and Well Being

↘ in the risk of

- Mental Heath
- Cognitive functioning
- Chronic diseases
- **MORTALITY**

(Ekelund et al., 2016 ; Samitz, Egger, & Zwahlen, 2011 ; Hupin et al., 2015 ; Warburton, Charlesworth, Ivey, Nettlefold et Bredin, 2010)



STRONG PREVALENCE OF PHYSICAL INACTIVITY

- 23%
- 81%
- Slightly higher prevalence among women
- Higher prevalence in the elderly

(OMS, 2017)


IT'S NOT TOO
LATE

Adults and seniors initially physically inactive

PA
initiation and maintenance

LOWER RISK FOR ALL CAUSE MORTALITY

Independently :

- Previous levels of physical activity
- Risk factors
- Cardiovascular or cancer diseases

(Dornh et al., 2018 ; Mok et al., 2019 ; Rhodes et al., 2017 ; Saint Maurice et al. 2019)

¿

What are the factors involved in behavior change ?

?

Adults and seniors initially physically inactive

PA Initiation and maintenance

¿

What are the factors involved in behavior change ?

?

BIOLOGICAL
factors

DEMOGRAPHIC
factors

ENVIRONMENTAL
factors

CLINICAL
factors

PSYCHOLOGICAL
factors

Adults and seniors initially physically inactive

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What are the factors involved in behavior change ?

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PERSONALITY

Five-Factor Model

(Digman, 1990 ; Goldberg, 1990 ; McCrae & Costa, 1990)

Neuroticism | **E**xtraversion | **O**penness | **A**greeableness | **C**onscientiousness

“ individual characteristics ways of thinking, feeling and behaving ”

(McCrae & Costa, 2006)

Extraversion

- Propensity to be energetic
- Propensity to sociability
- Search for sensations

+

Conscientiousness

+

- Propensity to Self-discipline
- Propensity to Organization

(Artese et al., 2017 ; Rhodes & Smith, 2006 ; Sutin et al.,2016 ; Wilson et Dishman, 2015)

Extraversion

- Propensity to be energetic
- Propensity to sociability
- Search for sensations

+

Conscientiousness

- Propensity to Self-discipline
- Propensity to Organization

+

Openness

- Search for variety
- Propensity to curiosity
- Search for news experiences

+

(Rhodes & Smith, 2006 ; Sutin et al., 2016 ; Wilson et Dishman, 2015)

Neuroticism

-

- Propensity to feel negative emotions (eg., anxiety, impulsiveness)
- Emotional distress

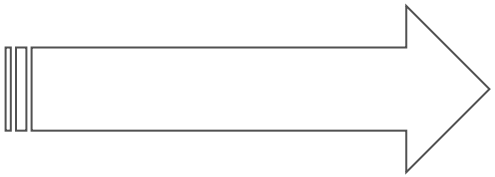
(Artese et al., 2017 ; Rhodes & Smith, 2006 ; Sutin et al., 2016 ; Wilson et Dishman, 2015)

Extraversion ✓

Conscientiousness ✓

Openness ✓

Neuroticism ✗



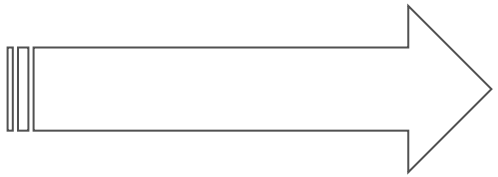
(Artese et al., 2017 ; Rhodes & Smith, 2006 ; Sutin et al., 2016 ; Wilson et Dishman, 2015)

Extraversion ✓

Conscientiousness ✓

Openness ✓

Neuroticism ✗



- Existing studies are mostly cross-sectional !

(Artese et al., 2017 ; Rhodes & Smith, 2006 ; Sutin et al., 2016 ; Wilson et Dishman, 2015)

Objective : **to examine the association between personality traits and longitudinal patterns of PA change**

Neuroticism | **E**xtraversion | **O**penness | **A**greeableness | **C**onscientiousness

?

Adults and seniors initially physically inactive

PA INITIATION

Objective : **to examine the association between personality traits and longitudinal patterns of PA change**

Neuroticism | **E**xtraversion | **O**penness | **A**greeableness | **C**onscientiousness

?

Adults and seniors initially physically inactive → PA INITIATION

Adults and seniors initially physically active → PA DROP OUT

Openness

- Search for stimulation and variety

Extraversion

- Search for sensation and positives emotions

(McCrae & Costa, 1992 ; Rolland, 2004)

Openness

- Search for stimulation and variety

Extraversion

- Search for sensation and positives emotions

Conscientiousness

- Propensity to be self-discipline

(McCrae & Costa, 1992 ; Rolland, 2004)

Openness

- Search for stimulation and variety

Extraversion

- Search for sensation and positives emotions

Conscientiousness

- Propensity to be self-discipline

Neuroticism

- Propensity to feel anxiety
- Pain extrapolation

(McCrae & Costa, 1992 ; Rolland, 2004)

Openness

- Search for stimulation and variety

Extraversion

- Search for sensation and positives emotions

Conscientiousness

- Propensity to be self-discipline

Neuroticism

- Propensity to feel anxiety
- Pain extrapolation

HYPOTHESES

Lower **N** and higher **E**,**C**, and **O**, would be associated with :

1. an increase in the likelihood of becoming physically active at follow up among inactive individuals at baseline

Openness

- Search for stimulation and variety

Extraversion

- Search for sensation and positives emotions

Conscientiousness

- Propensity to be self-discipline

Neuroticism

- Propensity to feel anxiety
- Pain extrapolation

HYPOTHESES

Lower **N** and higher **E**,**C**, and **O**, would be associated with :

1. an increase in the likelihood of becoming physically active at follow up among inactive individuals at baseline

2. a decrease in the likelihood of drop out PA at follow-up among physically active individuals at baseline

1. Participants

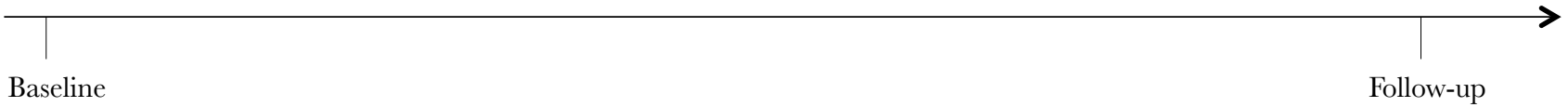
Cohorts	HRS	WLSG	WLSS	MIDUS	NHATS	NSHAP	ELSA	LISS	MIDJA
Nationality									
Follow-up	8 years	10 years	8 years	8 years	3 years	5 years	10 years	10 years	3 years
Participants	8146	2416	3847	1969	1899	1518	5901	2181	618
Age (in years)	M: 66.34 SD: 8.77	M: 55.44 SD: 11.19	M : 64.28 SD : 0.66	M: 63.34 SD : 6.63	M: 78.30 SD: 7.05	M: 71.03 SD: 6.34	M: 65.12 SD: 8.01	M: 47.88 SD: 14.11	M: 54.55 SD: 13.41
% Female	61%	56%	53%	53%	59%	55%	56%	52%	53%

<u>Overall descriptives characteristic of the samples</u> :

- **Age** : 16 to 107 y
- **M***age* : 62,92 y
- **% F** : 55%

2. Measures

- Demographic variables (sex, age, education level, race)
- Personality traits (FFM)
- Physical activity at baseline
- Physical activity at follow up



Participants were included if they presented complete

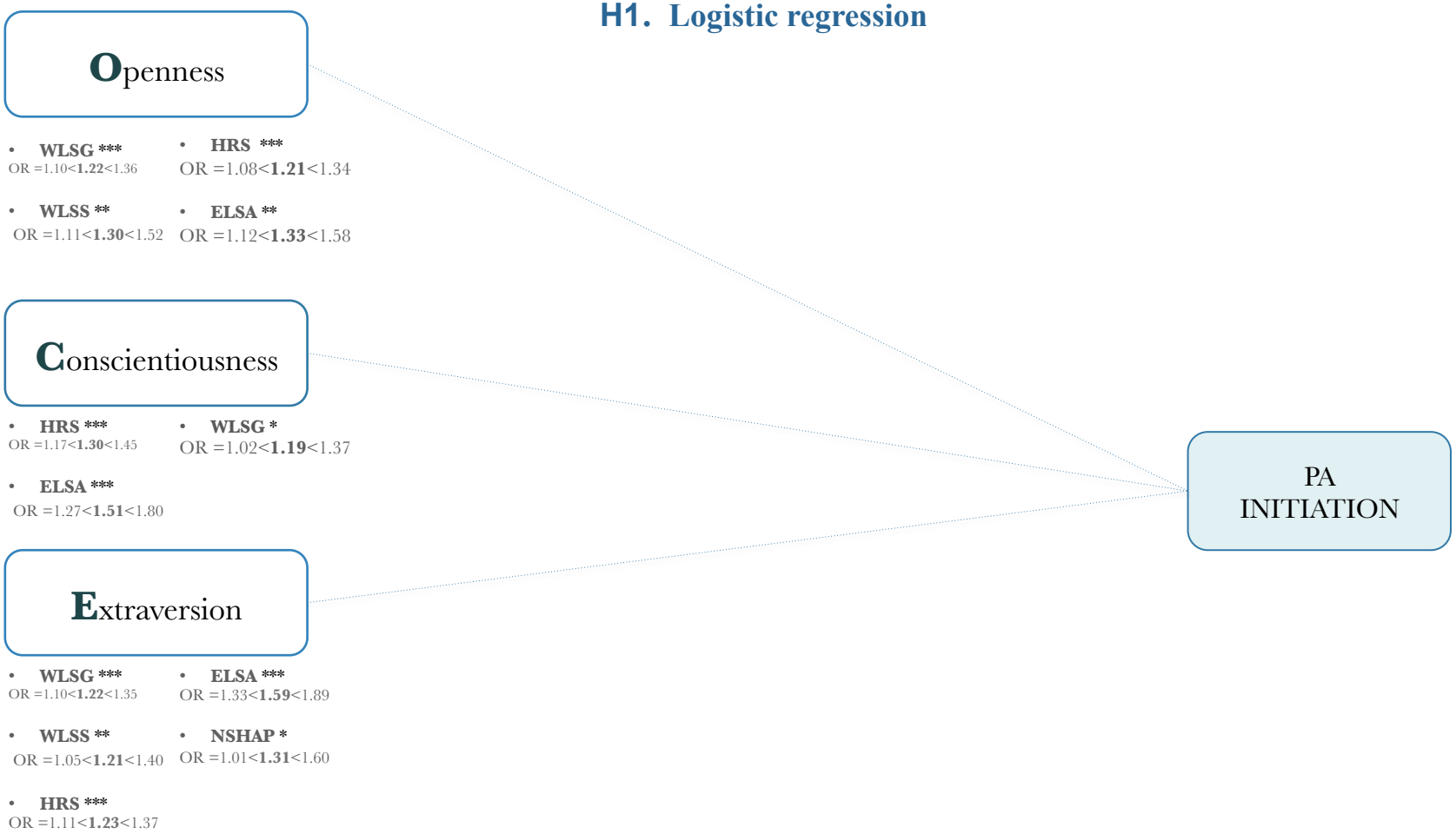
- ***Demographics*** data
- ***Personality*** data
- ***PA*** data at ***baseline*** and ***at follow-up***.

Final sample : 28 495 participants

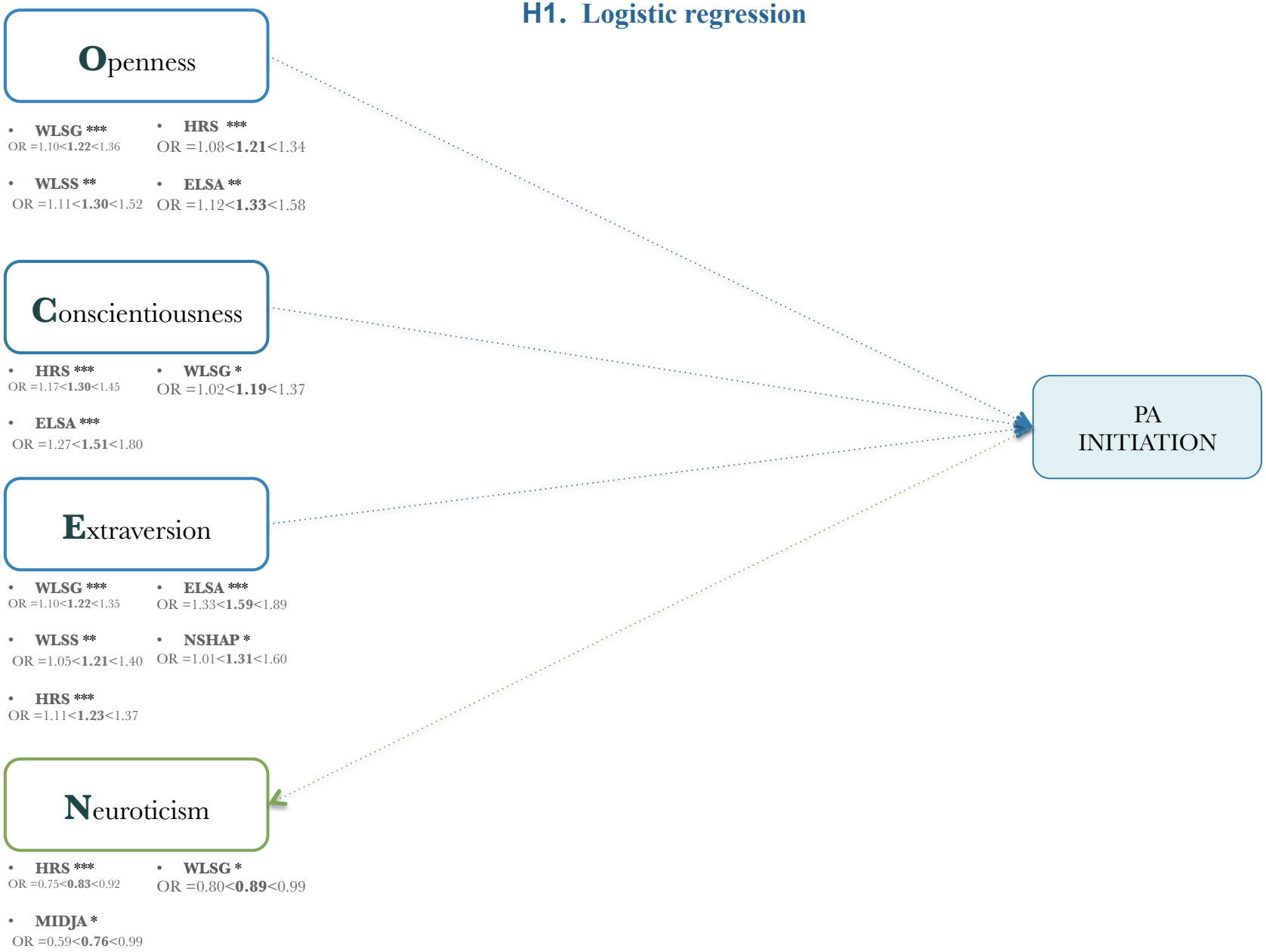
H1. Logistic regression

Predictors	Variables to predict	Covariates	Sample
• **Personality traits**	**PA** • **Inactivity** at follow up was coded 0 • **Activity** at follow up was coded 1	• Sex • Age • Educational level • Race	• Only **physically inactive** individuals at baseline

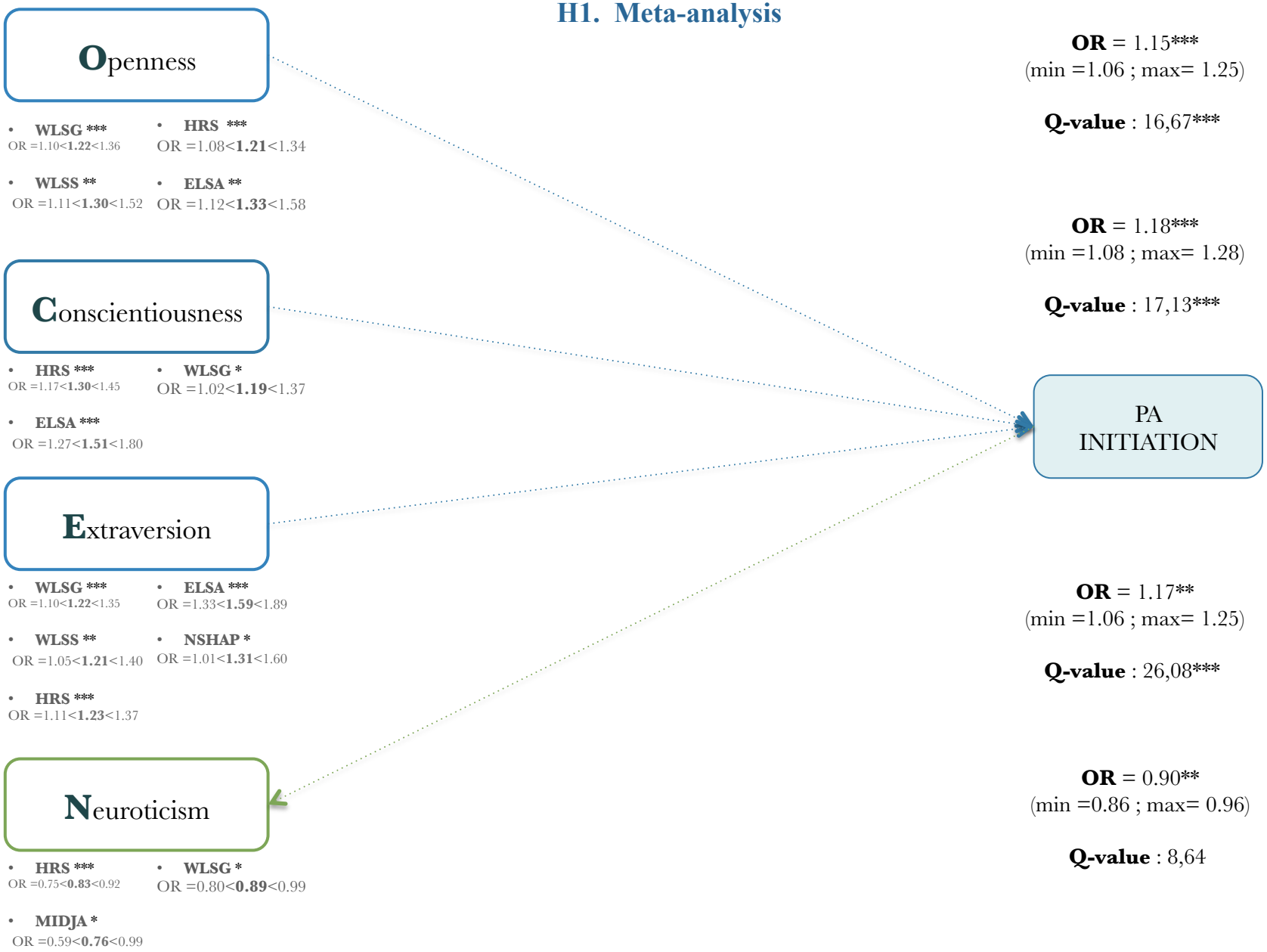
H1. Logistic regression



H1. Logistic regression



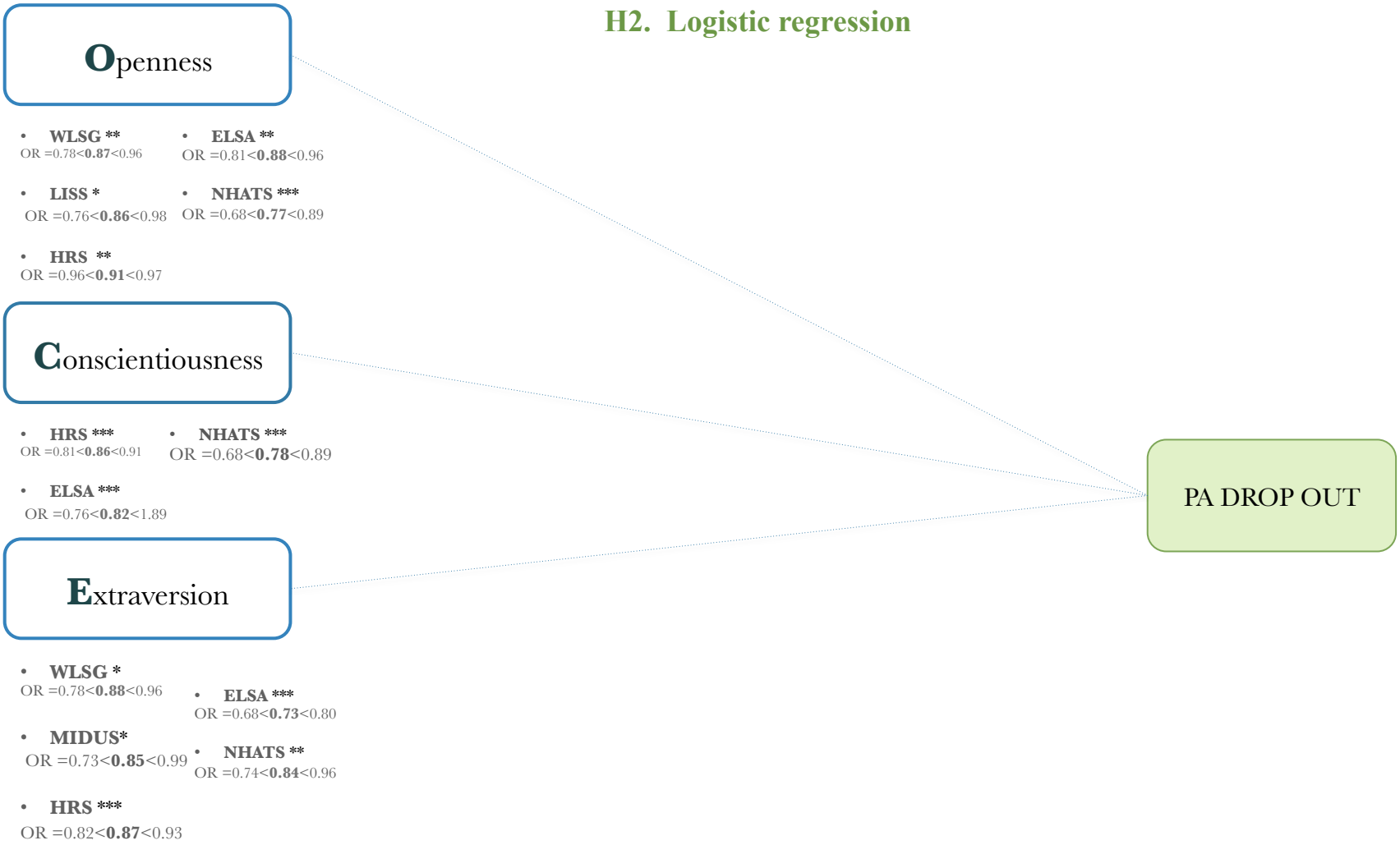
H1. Meta-analysis



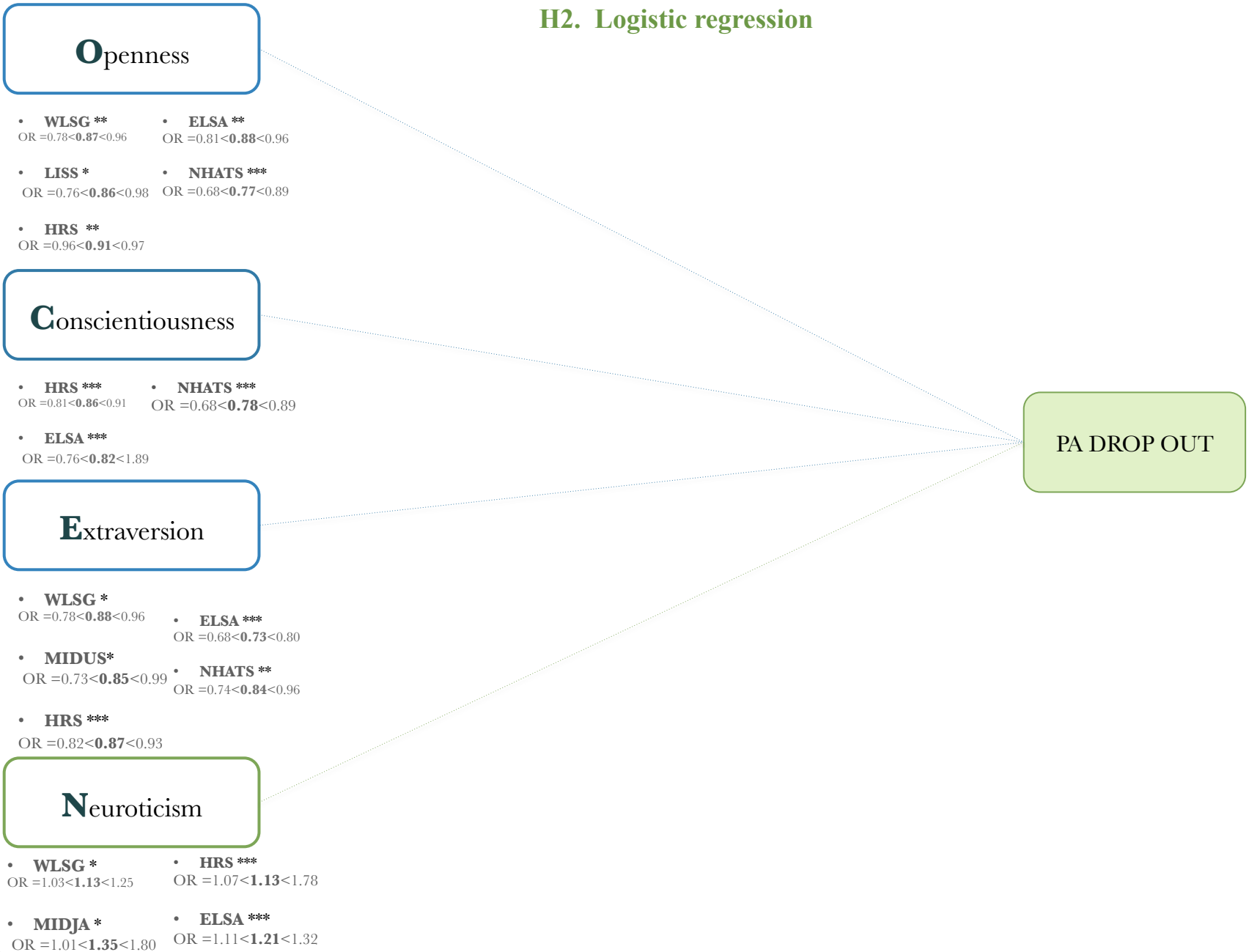
H2. Logistic regression

Predictors	Variables to predict	Covariates	Sample
• **Personality traits**	**PA** • **Activity** at follow up was coded 0 • **Inactivity** at follow up was coded 1	• Sex • Age • Educational level • Race	• Only **physically active** individuals at baseline

H2. Logistic regression



H2. Logistic regression



H2. Meta-analysis

Openness

- **WLSG ****
  OR =0.78<**0.87**<0.96
- **ELSA ****
  OR =0.81<**0.88**<0.96
- **LISS ***
  OR =0.76<**0.86**<0.98
- **NHATS *****
  OR =0.68<**0.77**<0.89
- **HRS ****
  OR =0.96<**0.91**<0.97

Conscientiousness

- **HRS *****
  OR =0.81<**0.86**<0.91
- **NHATS *****
  OR =0.68<**0.78**<0.89
- **ELSA *****
  OR =0.76<**0.82**<1.89

Extraversion

- **WLSG ***
  OR =0.78<**0.88**<0.96
- **ELSA *****
  OR =0.68<**0.73**<0.80
- **MIDUS***
  OR =0.73<**0.85**<0.99
- **NHATS ****
  OR =0.74<**0.84**<0.96
- **HRS *****
  OR =0.82<**0.87**<0.93

Neuroticism

- **WLSG ***
  OR =1.03<**1.13**<1.25
- **HRS *****
  OR =1.07<**1.13**<1.78
- **MIDJA ***
  OR =1.01<**1.35**<1.80
- **ELSA *****
  OR =1.11<**1.21**<1.32

PA DROP OUT

OR = 0.89***
(min =0.85 ; max= 0.92)

Q-value : 5,73

OR = 0.87***
(min =0.84 ; max= 0.92)

Q-value : 11,83

OR = 0.88***
(min =0.82 ; max= 0.94)

Q-value : 28,27***

OR = 1.09***
(min =1.03 ; max= 1.16)

Q-value : 16,45***

Extraversion

Openness

Conscientiousness

- Higher likelihood of initiating PA
- Lower likelihood to quit PA

…over follow up period ranging from 3 to 10 years

Extraversion

Openness

Conscientiousness

- Higher likelihood of initiating PA
- Lower likelihood to quit PA

(Allen et al., 2016; Sutin et al., 2016; Wilson & Dishman, 2015)

> **Promotes PA maintenance**

Extraversion

- Search for positive emotions
- Propensity for sociability
- Search for sensations
- Propensity to be energetic and enthusiastic

Openness

- Search for variety
- Propensity for curiosity
- Search for novel experiences

PA may satisfy their need

- Vehiculate social interactions
- Different types of activities
- Variety of sensations and feelings

(McCrae & John, 1992 ; Rolland, 2004)

Extraversion

Openness

Conscientiousness

- Propensity for self-disciplined
- Propensity for organization

Favorise the maintenance of the behavior

(McCrae & John, 1992 ; Rolland, 2004 ;Zhang et al., 2019)

Extraversion

Openness

Conscientiousness

- Propensity for self-disciplined
- Propensity for organization

=> assimilation to sociocultural norms

Follow public health recommendations

(Gebauer et al., 2014)

Extraversion

Openness

Conscientiousness

Self-Determined Theory

INTRINSIC MOTIVATION

Intrinsic Regulation (e.g.,

pleasure, satisfaction...)

Favorise the initiation and maintenance of the behavior

(Deci & Ryan, 2000 ; Ingledew et al., 2004 ; Ingledew et Markland, 2008 ; Teixeira et al., 2012)

Extraversion

Openness

Conscientiousness

- Higher likelihood of initiating PA
- Lower likelihood to quit PA
- Promotes the maintenance of the PA

Neuroticism

- Lower likelihood of initiating PA
- Higher likelihood to quit PA

…over follow up period ranging from 3 to 10 years

Extraversion

Openness

Conscientiousness

- Higher likelihood of initiating PA
- Lower likelihood to quit PA
- Promotes the maintenance of the PA

Neuroticism

- Lower likelihood of initiating PA
- Higher likelihood to quit PA

(Allen et al., 2016; Sutin et al., 2016; Wilson & Dishman, 2015)

> Impede PA participation and maintenance

Extraversion

Openness

Conscientiousness

Neuroticism

- Propensity for distress and anxiety
- Fear of falling
- Pain experience extrapolation

Brake

(Mann et al., 2006 ; Stults-Kolehmainen & Sinha, 2014 ; Sutin et al. 2019)

Extraversion

Openness

Conscientiousness

Neuroticism

- Propensity for distress and anxiety
- Fear of falling
- Pain experience extrapolation
- Less self-determined forms of motivation

Brake

(Deci & Ryan, 2000 ; Ingledew et al., 2004 ; Ingledew et Markland, 2008 ; Teixeira et al., 2012)

- PERSONALITY AND PHYSICAL ACTIVITY CHANGE IN 9 COHORTS -

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- The largest and the longest replicable evidence of an association between personality and changes in PA in adulthood

- Identify the psychological characteristics that must be targeted by interventions directed toward the promotion of PA

- In prevention to identify the individuals who are at risk of quitting PA

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- THANK YOU FOR YOUR ATTENTION -

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