

# The importance of considering intra-individual variability and inter-individual differences for studying the effect of positive psychology interventions

Jean-Baptiste Pavani, Pascal Antoine, Anne Congard, and Bruno Dauvier

A research team combining expertise in differential and clinical psychology

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Centre **PSY**  
**Cle** Centre de Recherche en  
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# The interest of considering inter-individual differences

- Beneficial effects exerted by positive psychology interventions on well-being and depression
- Weakness or moderateness of those effects
  - Cohen's  $d$  of .61 for well-being and .65 for depression according to Sin & Lyubomirsky (2009)
  - Cohen's  $d$  of .34 for well-being and .23 for depression according to Bolier et al. (2013)
- A possible explanation: inter-individual differences in the response to these interventions
  - Proposing positive psychology interventions only to the categories of individuals that are likely to benefit from them might increase their clinical utility

# What is already known

- Differentiated responses to positive psychology interventions due to:
  - Basic personality traits such as extraversion and openness to experience  
(Senf & Liao, 2011)
  - More specific traits such as pessimism and self-criticism  
(e.g., Sergeant & Mongrain, 2014; Shapira & Mongrain, 2010)
  - Affective or motivational states at the beginning of the intervention  
(e.g., Layous, Nelson, & Lyubomirsky, 2012)
- Limits:
  - Researches that are limited in number
  - Data analytic strategy that are debatable, such as the transformation of continuous trait variables in categorical variables  
(e.g., Layous et al., 2012; Shapira & Mongrain, 2010)

# How to consider inter-individual differences

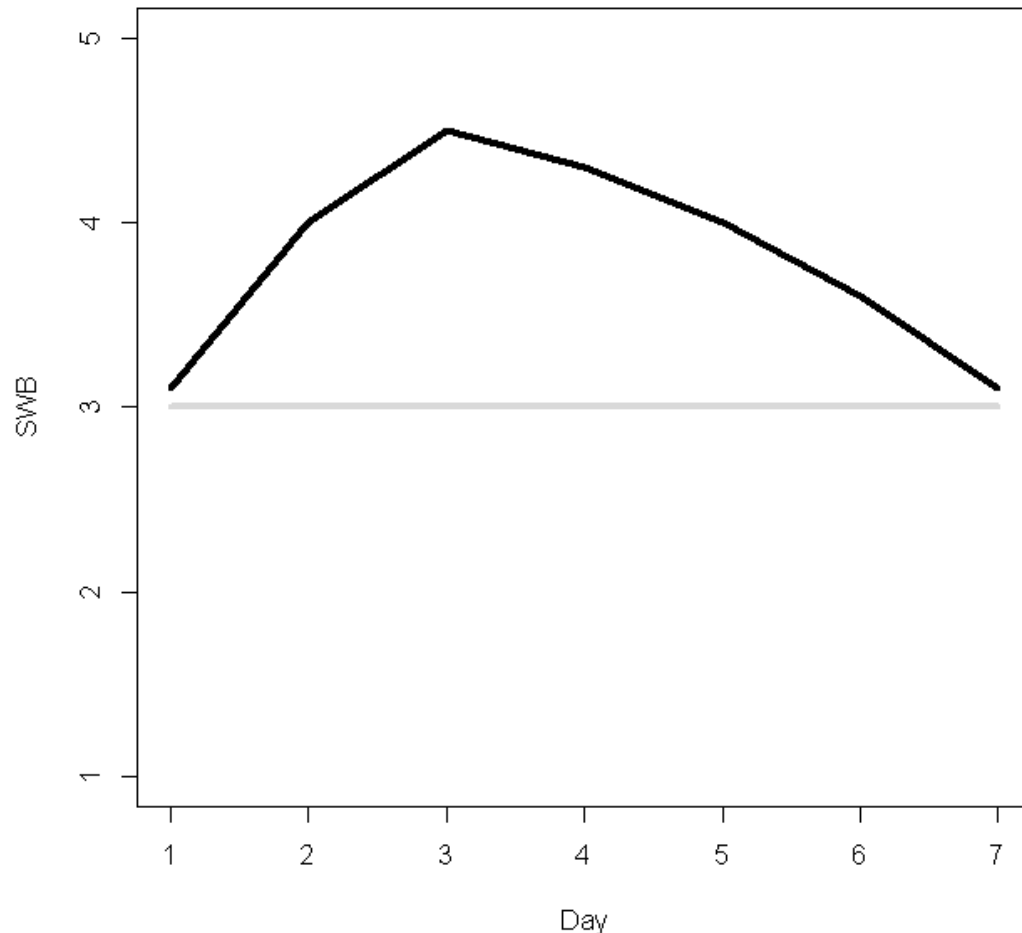
- Procedure:

Asking the participants to complete a questionnaire assessing the individual characteristic of interest before the beginning of the intervention

- Data analytic strategy:

Calculating the interactive effect between the individual characteristic of interest and the intervention on one outcome variable or another (e.g., well-being, depression)

# The interest of considering intra-individual variability



- Gaining a refined knowledge of the intervention's continuous, day by day, effects
- Revealing the distinctive trajectory of change in one outcome variable or another within individuals

*Figure 1.* Simulated different changes in subjective well-being (SWB) produced by a fictive 7-day intervention within two fictive individuals having the same pretest and posttest scores.

# What is already known

- No researches on the continuous, day by day, changes caused by positive psychology interventions
- Many researches revealing the changes caused by positive psychology interventions from pretest to posttest, and weeks and months after the posttest  
(e.g., Gander, Proyer, Ruch, & Wyss, 2013; Seligman, Steen, Park, & Peterson, 2005; Senf & Liao, 2011; Sergeant & Mongrain, 2014)
- Limits:
  - Long periods between two assessments
  - Data analytic strategies that are debatable, such as the use of mean comparisons  
(Gander et al., 2013; Seligman et al., 2005)

# How to consider intra-individual variability

- **Procedure:**

Experience Sampling Method, consisting of daily short assessments of the outcome variables of interest, during the administration of the intervention

- **Data analytic strategy:**

Multilevel models (or mixed-effects models), that can take into account the hierarchical organization of the data collected

# Generalized Additive Mixed-effects Models (GAMMs)

- Regression approach enabling to:
  - Take into account the hierarchical organization of the data
  - Include the interactive effect of the individual characteristic measured before the beginning of the intervention
  - Capture the possible complex nonlinearity of the effects examined



# Experiential avoidance

- Definition:

The rigid disposition to avoid, inhibit, or try to eliminate all negative experiences (affect, sensations, thoughts), to the extent that it leads to the giving up of one's most valued goals

- Assessment:

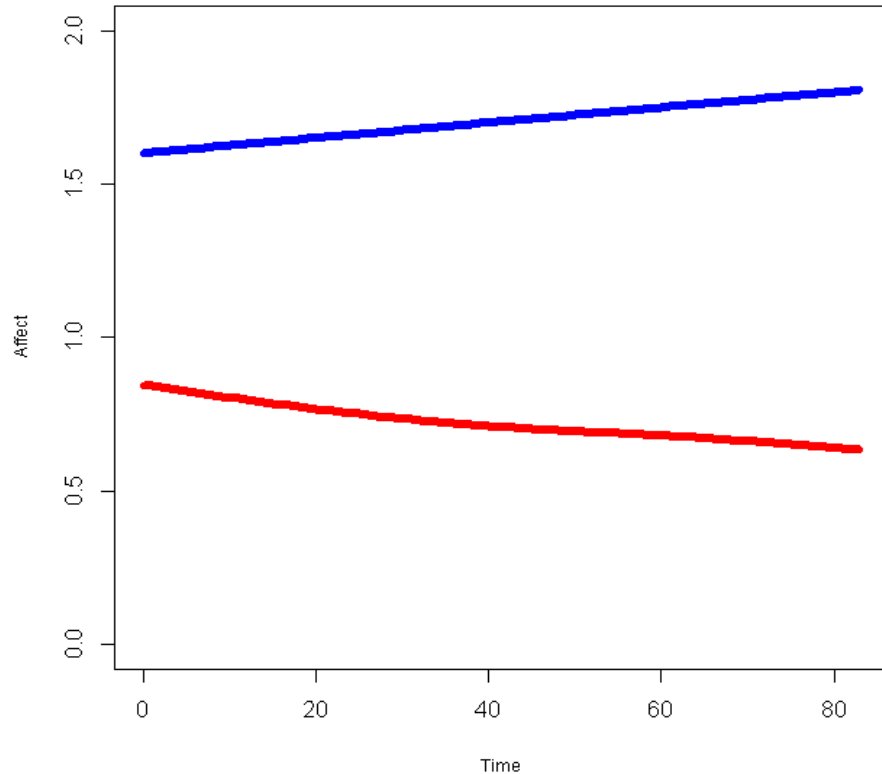
French validation of the Acceptance and Action Questionnaire-II

(Monestès et al., 2009)

# Experience Sampling Method

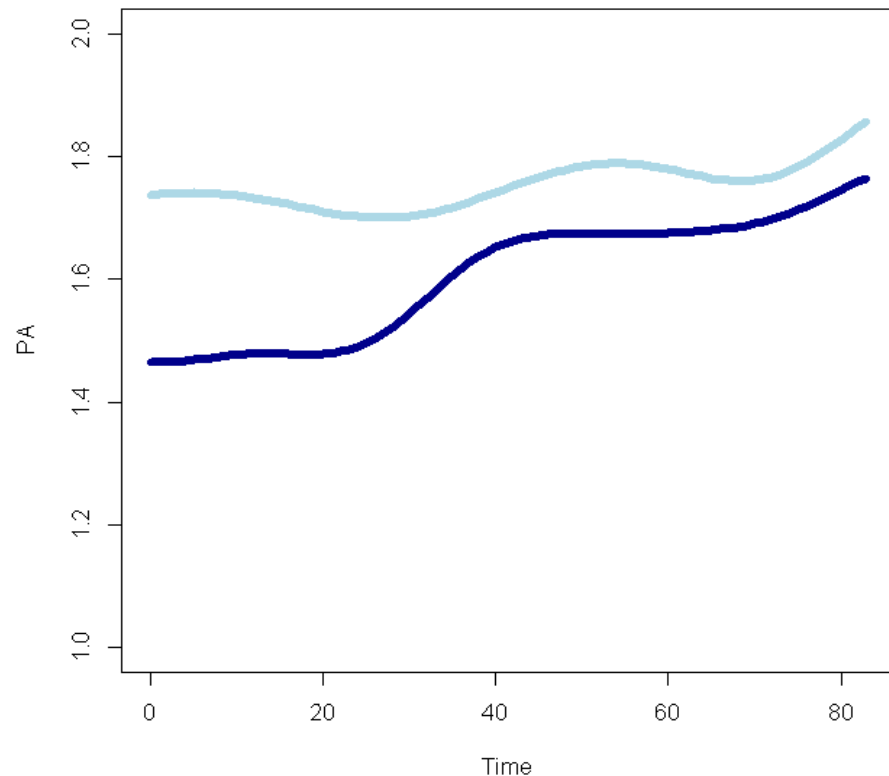
- Two daily brief assessments of positive and negative affect about midday and 7 pm during 48 consecutive days
- 3 phases:
  - Pretest = 3 days
  - Intervention = 6 weeks (42 consecutive days) of a comprehensive positive psychology program
  - Posttest = 3 days

# At the population level



*Figure 2.* Continuous intra-individual changes in positive affect (blue) and negative affect (red) produced by the intervention at the population level.

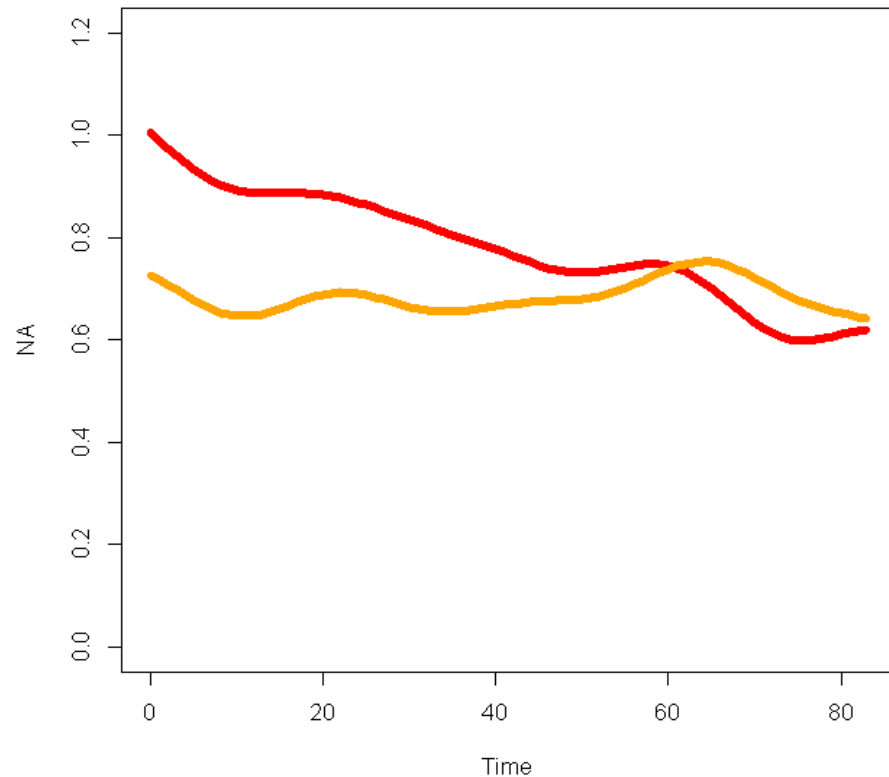
# Inter-individual differences due to experiential avoidance (1)



*Figure 3.* Continuous intra-individual changes in positive affect produced by the intervention according to the baseline level of experiential avoidance.

Light blue = low experiential avoidance  
Dark blue = high experiential avoidance

# Inter-individual differences due to experiential avoidance (2)



*Figure 4.* Continuous intra-individual changes in negative affect produced by the intervention according to the baseline level of experiential avoidance.

Orange = low experiential avoidance

Red = high experiential avoidance

# Discussion

- No contradictions with prior findings
- Refined knowledge of how positive psychology interventions impact well-being or depression, and among whom they are the most effective

# **Thank you for your attention !**

[Jean-baptiste.pavani@univ-amu.fr](mailto:Jean-baptiste.pavani@univ-amu.fr)