Development and Validation of the Social Thermoregulation, Risk Avoidance, and Eating Questionnaire - 2 (STRAEQ-2)

Olivier Dujols[1],
Richard A. Klein[2] ,
Siegwart Lindenberg[2,3],
STRAEQ-2 team[4],
Hans IJzerman[1,5]

1. University of Grenoble Alpes, France;
2. Tilburg University, The Netherlands;
3. Rijksuniversiteit Groningen, The Netherlands;
4. A collective of 167 authors at 129 universities;
5. Institut Universitaire de France (IUF), France

Outline of the presentation

- **Environmental threats (including temperature variations) and how we cope with them shape personality**

- **Phase 1 of the project (completed):**
  A bottom-up strategy to generate and select the items of the scale

- **Phase 2 of the project (currently in progress):**
  Multisite study with a holdhout analysis strategy (exploratory/confirmatory)

- **Future of the project**

Project rationale and goals

Our general premise is that environmental threats shape personality.

And our goal is to measure individual differences in the way people cope with the environment.

Basic environmental threats

1. Fluctuation in temperatures:

Maintain one's internal temperature within a comfortable range

2. Physical threats:

Avoid predators or people who want to do you harm

3. Lack of food:

Preventing starvation

Theoretical Background

Unstable environment (versus stable)

- *Greater fluctuation in temperatures*

Theoretical Background

Unstable environment (versus stable)

- *Greater fluctuation in temperatures*

Stable environment versus instable environment

- *“Proactive” versus “reactive” personality (Tops et al., 2019; Koolhaas et al., 1999)*

Theoretical Background

Humans are altricial animals (reliant on caregivers for survival)

- *Must count on their caregivers to meet their basic needs*

Theoretical Background

Humans are altricial animals (reliant on caregivers for survival)

- *Must count on their caregivers to meet their basic needs*

Attachment (ECR-RS; Fraley, Heffernan, Vicary, & Brumbaugh, 2011):

- *Two continuous dimensions (from low to high)*
- *Anxiety: « I'm afraid that this person may abandon me. »*
- *Avoidance: « I prefer not to show this person how I feel deep down. »*

Theoretical Background

But attachment is not the only factor for engagement in social relationships:
environmental threats including temperature variations can also drive people to engage in relationships to secure themselves (IJzerman, 2021).

Theoretical Background

But attachment is not the only factor for engagement in social relationships:
environmental threats including temperature variations can also drive people to engage in relationships to secure themselves (IJzerman, 2021).

Personality traits:

- *facilitate survival (Buss, 2010),*
- *and are related to climate (Wei et al., 2017)*

Theoretical Background

But attachment is not the only factor for engagement in social relationships:
environmental threats including temperature variations can also drive people to engage in relationships to secure themselves (IJzerman, 2021).

Personality traits:

- *facilitate survival (Buss, 2010),*
- *and are related to climate (Wei et al., 2017)*

Hypersocial species can socially distribute threats on others:

- *Less costly metabolically (e.g., Beckes & Coan, 2011)*

Previous work

Using a validated 23 items scale (STRAQ-1) Vergara et al., (2019) showed that:

- ***Solitary thermoregulation*** *was positively linked to* ***attachment anxiety.***
- ***Social thermoregulation*** *was negatively linked to* ***attachment avoidance.***

Previous work

Using a validated 23 items scale (STRAQ-1) Vergara et al., (2019) showed that:

- ***Solitary thermoregulation*** *was positively linked to* ***attachment anxiety.***
- ***Social thermoregulation*** *was negatively linked to* ***attachment avoidance.***

Difficulty with measurement equivalence:

- *But the scale was somewhat inconsistent in some regions of the world.*

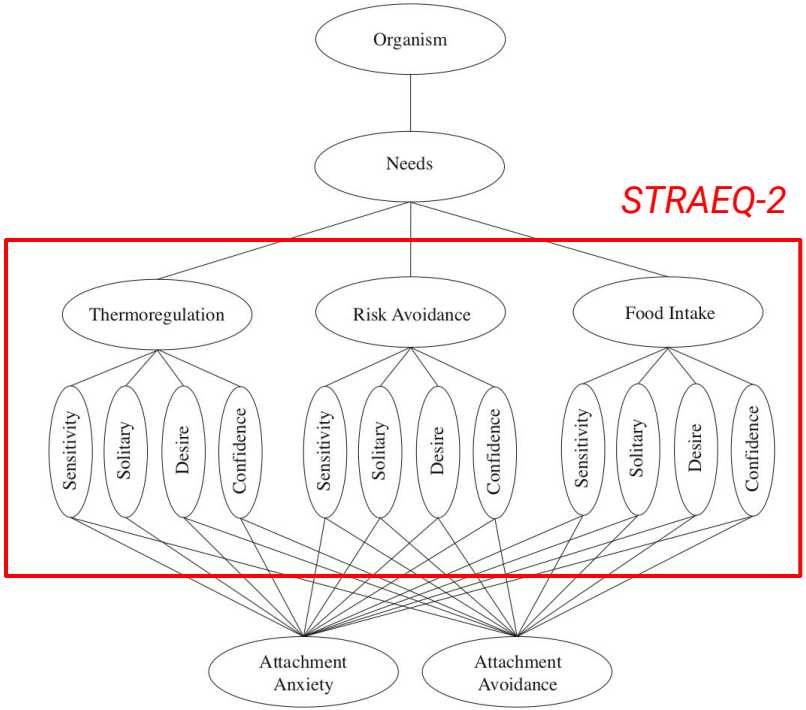
Goals

Develop and validate the STRAEQ-2 (Social Thermoregulation, Risk Avoidance, and Eating Questionnaire)

1) *Individual differences in basic needs*
2) *Sensitivity, solitary regulation of the need, social regulation of the need, and confidence in others*
3) *Explore the link with emotional attachment*

Phase 1 : Item generation and selection

A priori model



First step: item generation

To generate items suitable for their culture, we gave collaborators:

- **a description of each construct**
- **example items**

In total 53 laboratories from 32 countries generated 737 items.

Including 283 items for the thermoregulation subscale.

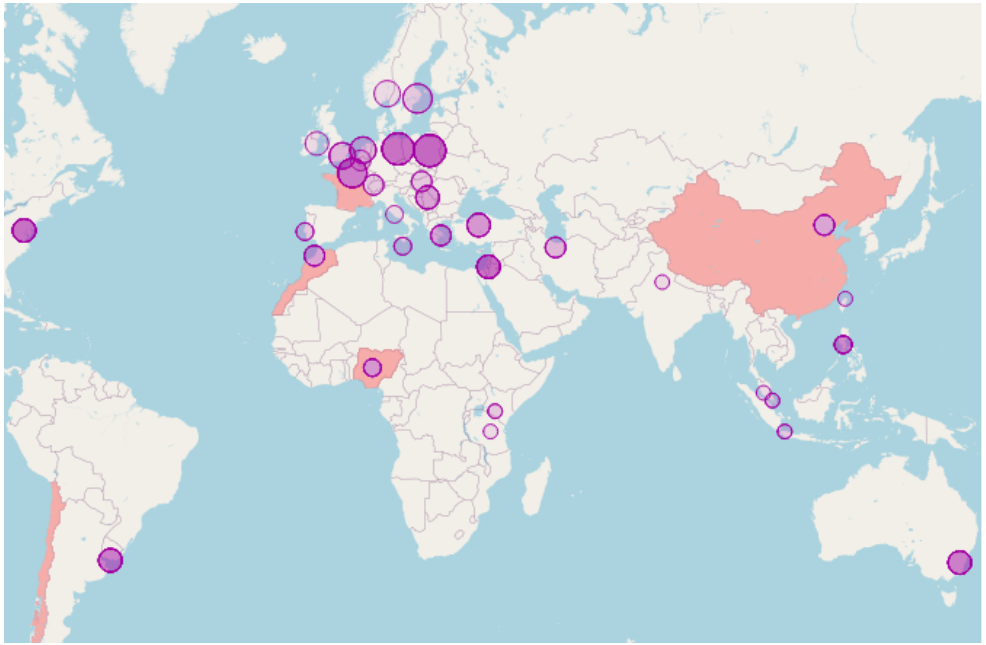


Fig 2. *World map of the countries that generated the STRAEQ-2 items*

Second step: item selection

A **diverse advisory committee** rated to what degree the items were representative of the construct.

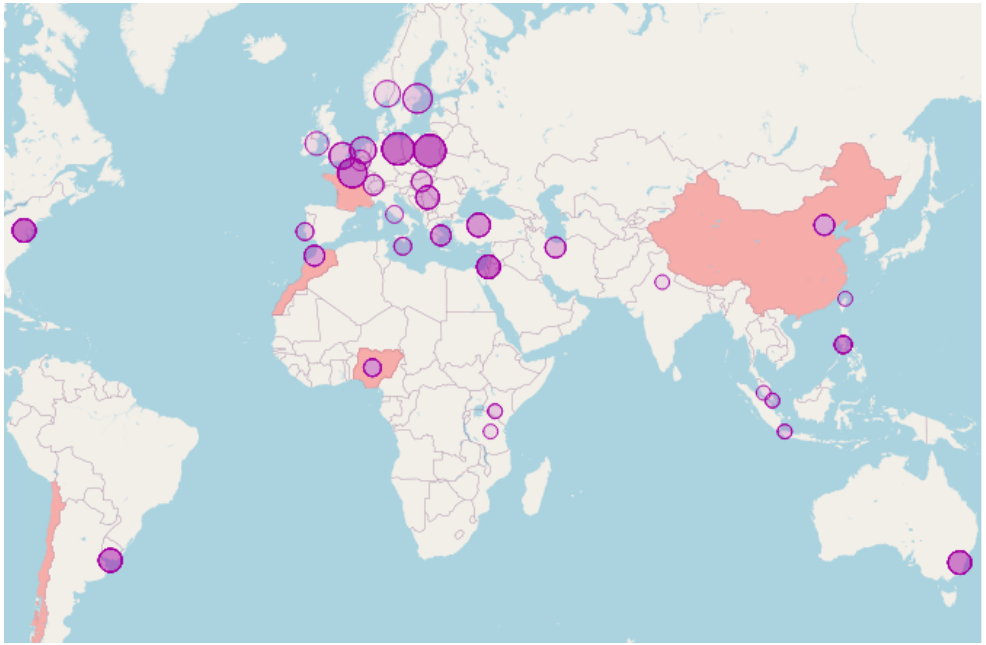


Fig 2. *World map of the countries that generated the STRAEQ-2 items*

Second step: item selection

A **diverse advisory committee** rated to what degree the items were representative of the construct.

We kept the **10 highest means and lowest standard deviation** items per subscales.

We replaced closely related items (~5 per subscales) to get a **wider range of behaviors**.

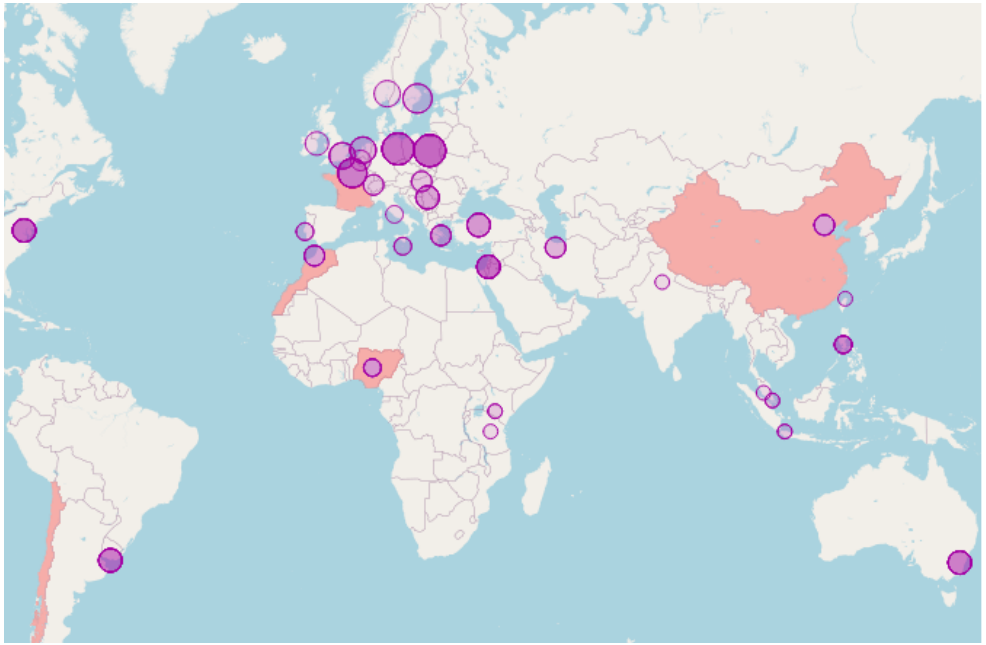


Fig 2. *World map of the countries that generated the STRAEQ-2 items*

Second step: item selection

A **diverse advisory committee** rated to what degree the items were representative of the construct.

We kept the **10 highest means and lowest standard deviation** items per subscales.

We replaced closely related items (~5 per subscales) to get a **wider range of behaviors**.

STRAEQ-2 scale: 120 items (10 per subdimension)

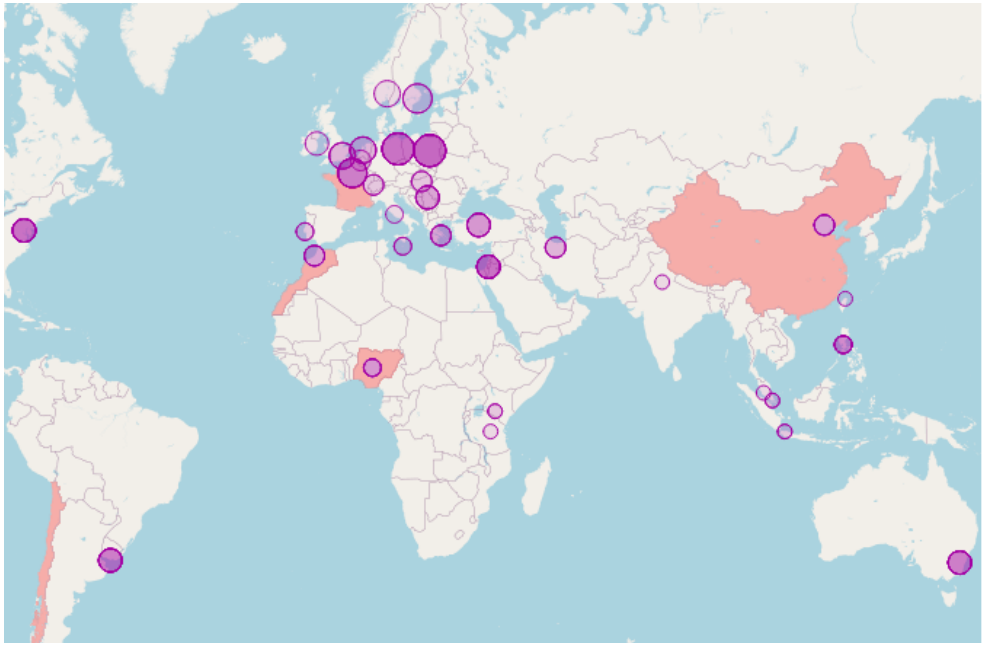


Fig 2. *World map of the countries that generated the STRAEQ-2 items*

Second step: item selection

Examples of items for temperature regulation:

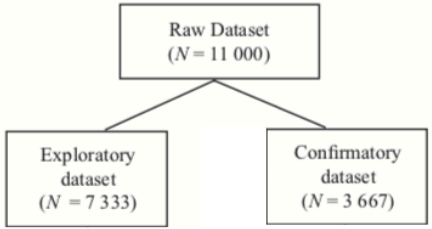
- *My body responds quickly (e.g., by sweating or shivering) when temperature changes.*
  (6.56 - 0.73 – Germany)
- *When I feel cold or hot, I can solve it by adding or removing clothing.*
  (6.25 - 0.46 – Singapore)
- *I feel tempted to hug or snuggle others when I am cold.*
  (5.78- 1.09 – Uruguay)
- *When at home I feel that I can usually cuddle with my partner when I feel too cold.*
  (6.78 - 0.44 – Sweden)

Phase 2 : Main Multisite Study (in progress, currently *N* = 3,000)

Data collection

- 4 sites pilot tested the survey, and asked participants to comment the clarity of the items
- 129 sites in 44 countries
- Translation if necessary (translation back-translation)
- *N* minimum = 100 participants per laboratories
- *N* aimed = ~13 000 participants across the globe

Goals of the analysis

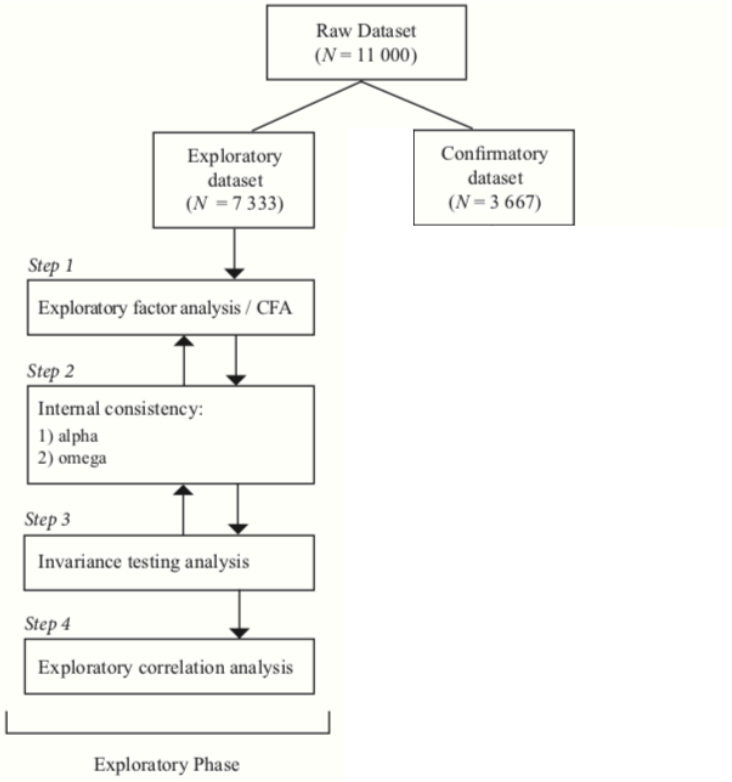


STRAEQ-2 hold-out analysis strategy:

1) ***exploratory phase*** *on a 2/3 split of the dataset,*

2) a pre-registered confirmatory phase *on an unseen remaining 1/3 of the dataset.*

Goals of the analysis



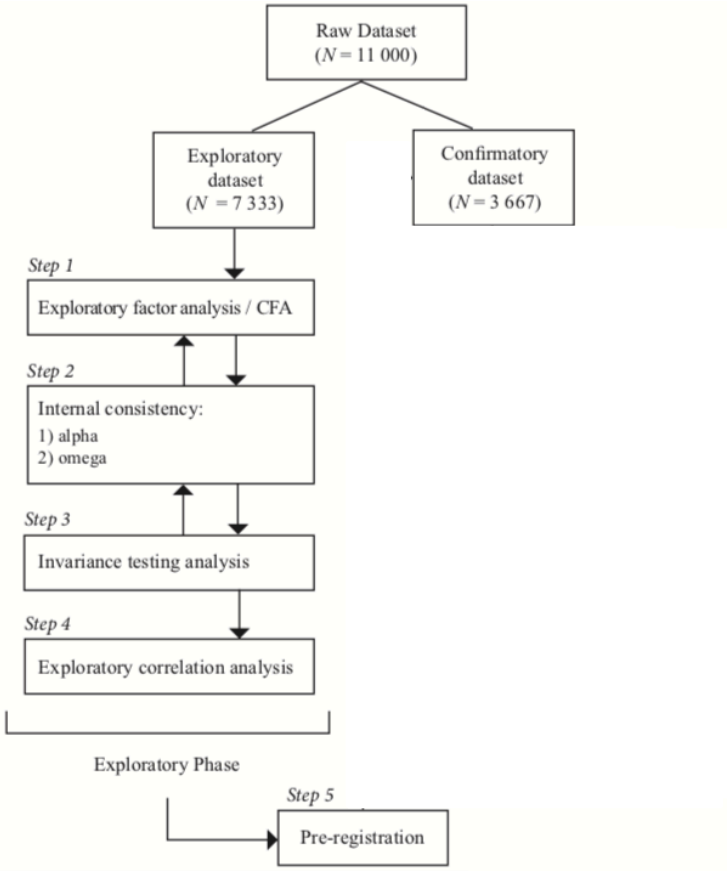
STRAEQ-2 hold-out analysis strategy:

1) ***exploratory phase*** *on a 2/3 split of the dataset,*

2) a pre-registered confirmatory phase *on an unseen remaning 1/3 of the dataset.*

UGA Université Grenoble Alpes

Goals of the analysis



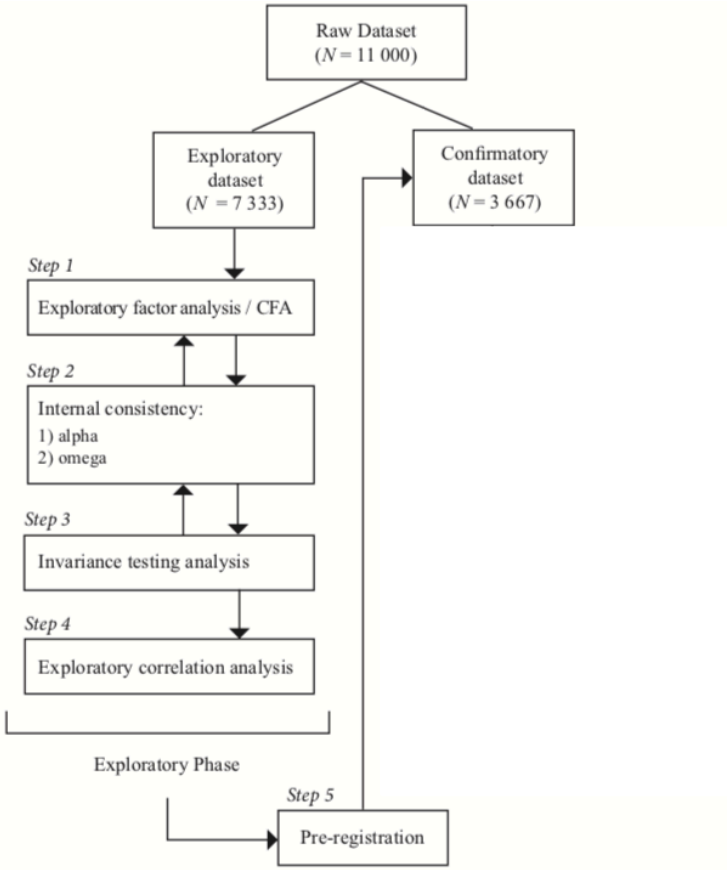
STRAEQ-2 hold-out analysis strategy:

1) ***exploratory phase*** *on a 2/3 split of the dataset,*

2) a pre-registered confirmatory phase *on an unseen remaning 1/3 of the dataset.*

UGA Université Grenoble Alpes

Goals of the analysis

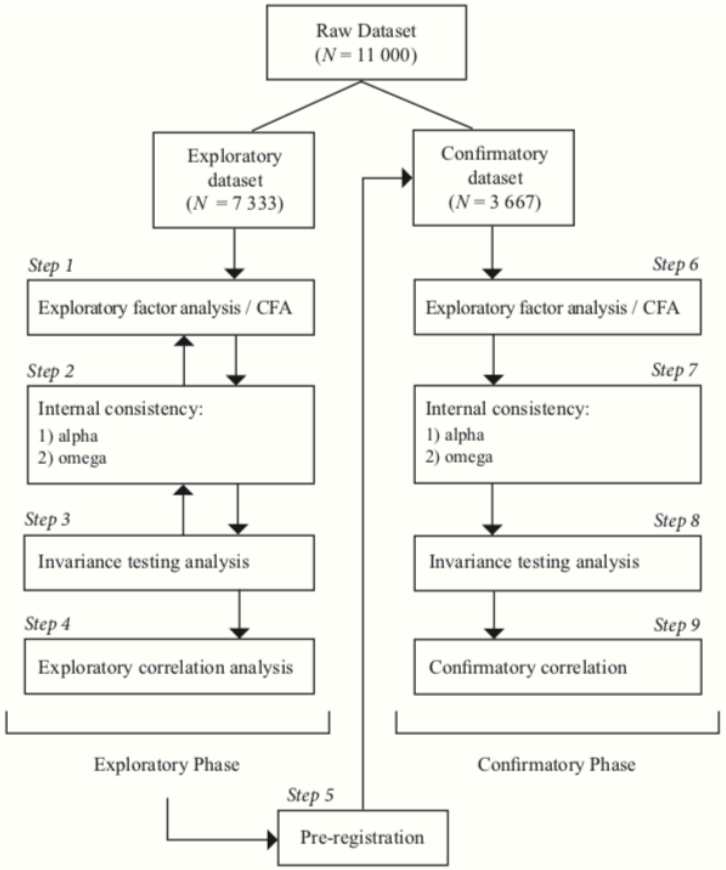


STRAEQ-2 hold-out analysis strategy:

1) ***exploratory phase*** *on a 2/3 split of the dataset,*

2) a pre-registered confirmatory phase *on an unseen remaning 1/3 of the dataset.*

Goals of the analysis



STRAEQ-2 hold-out analysis strategy:

1) ***exploratory phase*** *on a 2/3 split of the dataset,*

2) a pre-registered confirmatory phase *on an unseen remaning 1/3 of the dataset.*

UGA Université Grenoble Alpes

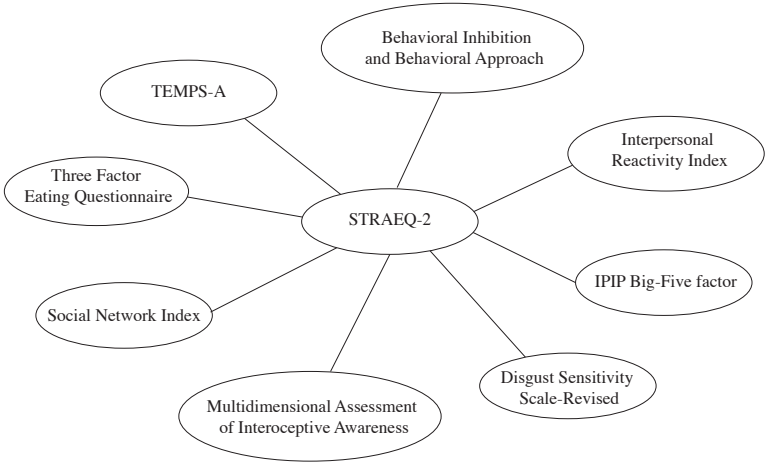
In addition

Validation tests of questionnaires

- *For different cultures/languages*
- *Providing translated versions of these tools*
- *Test the generalizability*

(e.g., Ghana, Saudi Arabia, Malaysia, Tanzania)

Openly available to other researchers (OSF)



Université Grenoble Alpes

In addition

Additional data via data scraping :

- *Collect climatic data*
- *Pathogen prevalence*
- *GDP of the region and of the country*
- *Homicide of the region and of the country of that year*
- *Education of the region and of the country of that year*
- *Location of participant childhood (e.g., attachment)*

Reuse of the dataset

Summary of the project

A scale with globally generated items

Measure individual differences in coping with the environment (including coping with temperature)

Linked to individual differences in emotional attachment

Thank you!

https://corelab.io

Co-Regulation (CORE) Lab.

financé par
IDEX Université Grenoble Alpes