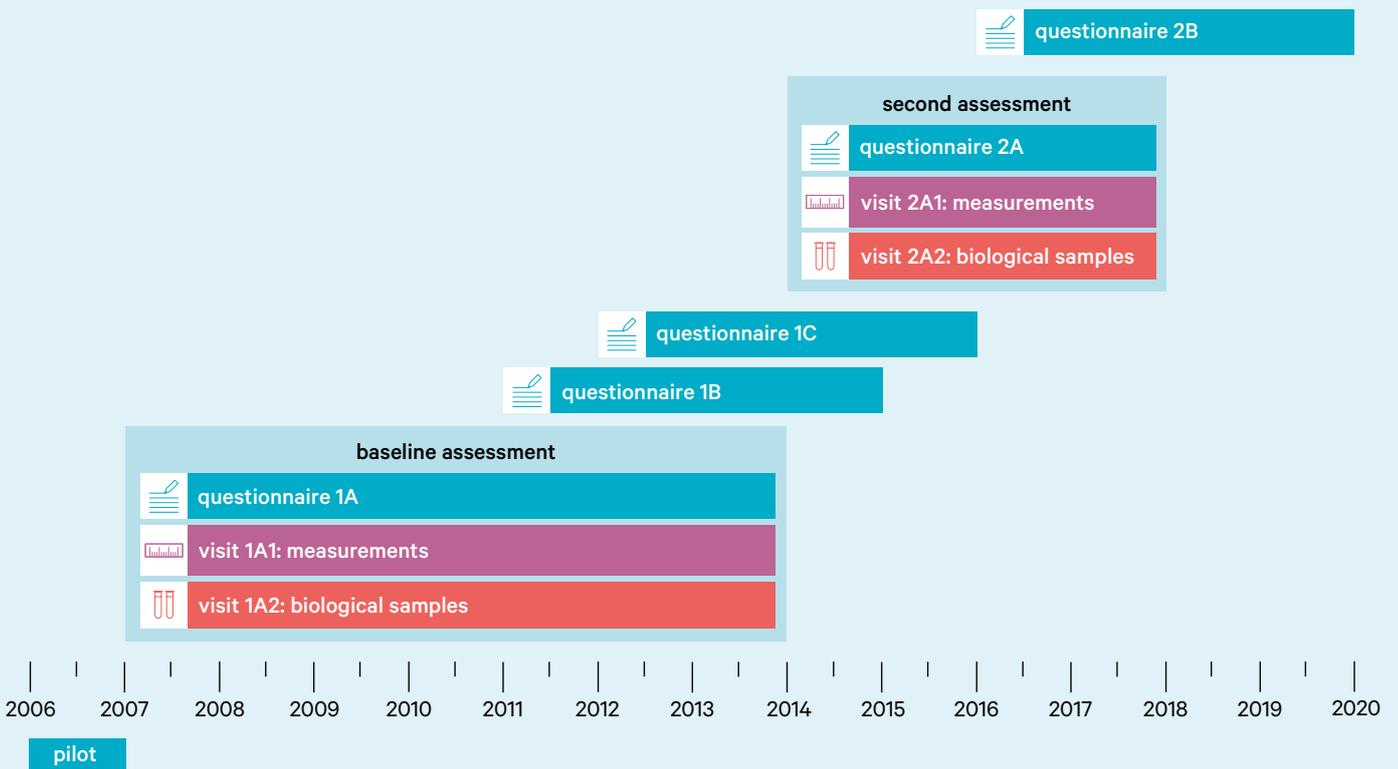


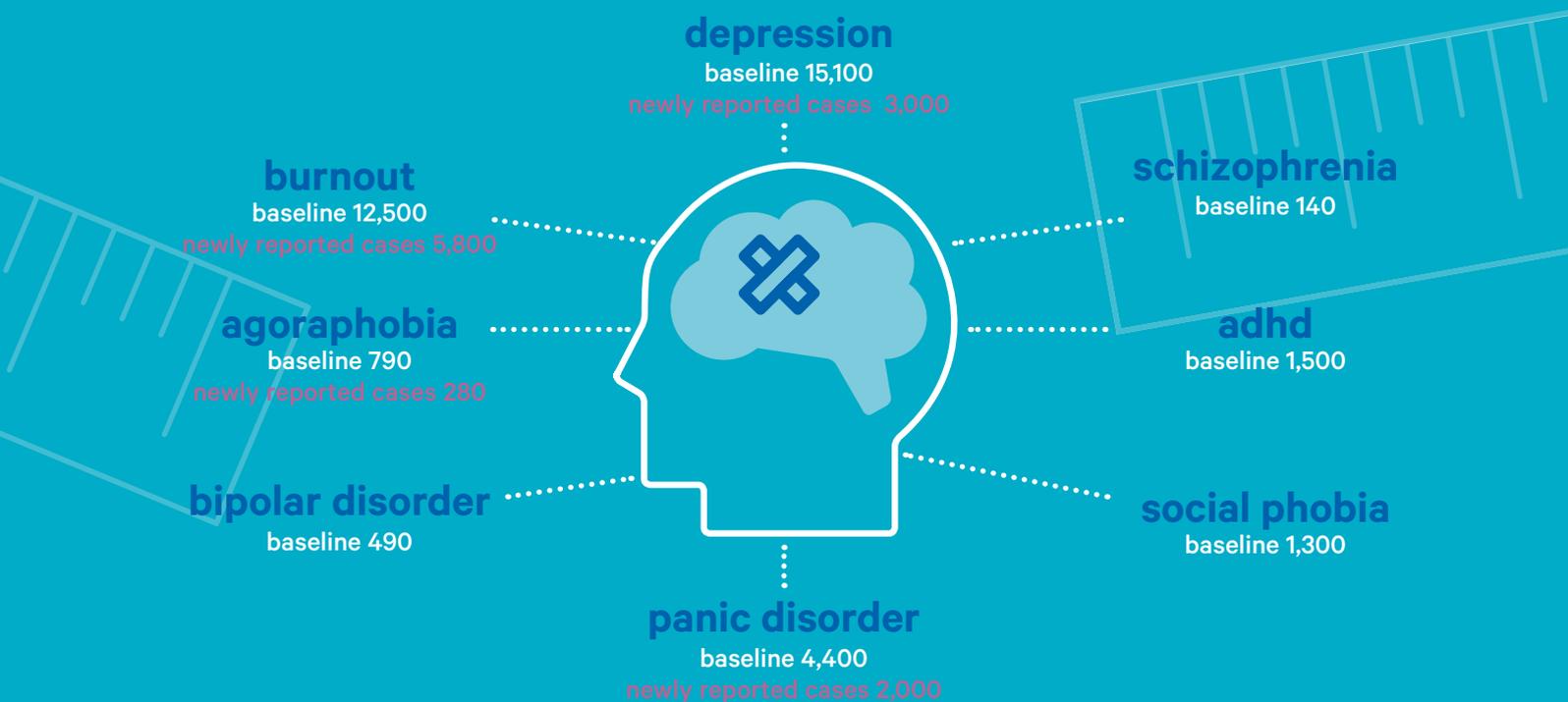
## no health without mental health!

Since 2006 Lifelines participants have cooperated in a wide variety of assessments that make our data collection as broad and varied as it is today. We were able to collect different biological samples and perform measurements that reflect on the physical state. Next to that, the participants have put a lot of effort in filling in questionnaires. This particular information can give insight in both physical and mental health and well being. Combining these different types of information can be of great potential for multidisciplinary research.





## selfreported number of Lifelines participants with:



## which Lifelines data can contribute to scientific research on mental health?

### questionnaires and measurements

A diverse data set is available on the factors that play an important role in mental health. These include wellbeing, personality, environmental factors, sleep, Childhood Trauma Questionnaire (CTQ), Long term Difficulties Inventory (LDI), List of Threatening Experiences (LTE), self-reported health (PROMIS), social support, loneliness, work-life balance, health problems. Data are also available on drug use (e.g. antidepressants such as SSRI's, SNRI's, TCA's and MAO inhibitors). Heart rate variability (HRV) is available for 152,000 adult participants.

### biological samples and genetic data

Several biological samples, including 24h urine, serum, plasma, DNA and faeces are available for research. Also, in the second assessment, scalp hair has been collected from 58,000 participants to measure for example long term cortisol levels. Furthermore, the Lifelines cohort provides a unique combination of genetic data and family relations. DNA data (GWAS) is available on 13,000 participants.

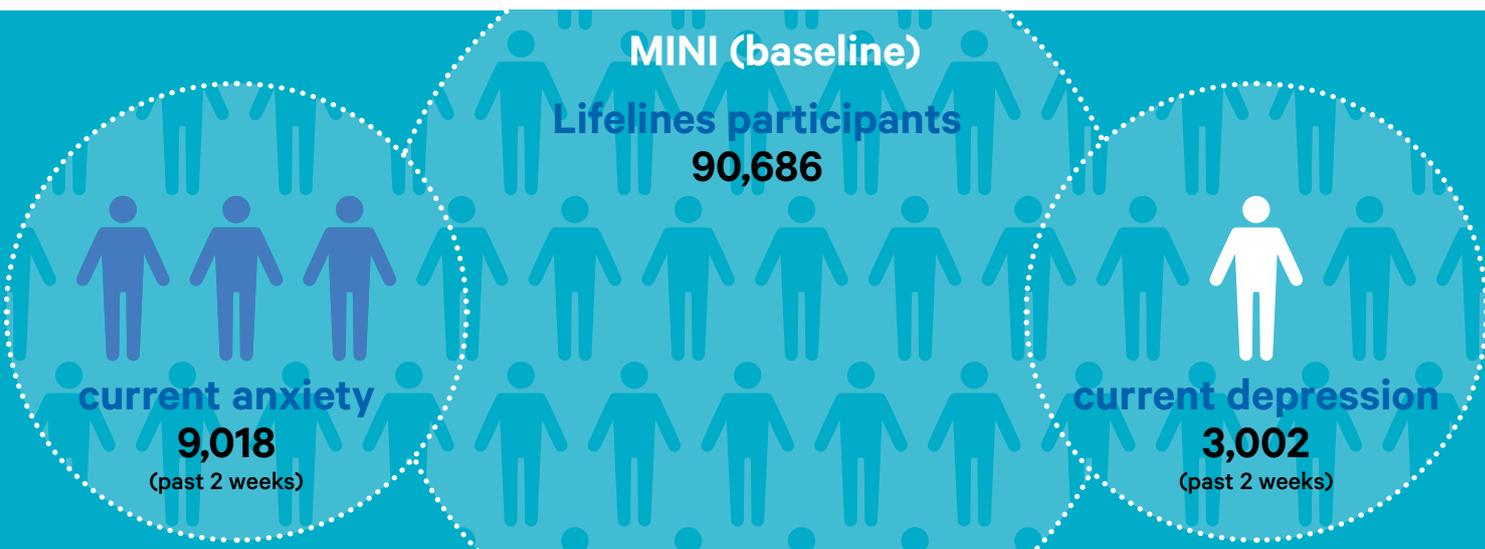


## measurements

### The Mini-International Neuropsychiatric Interview (MINI)

The Mini-International Neuropsychiatric Interview (MINI) is a short structured diagnostic interview for diagnosing psychiatric disorders that are compatible with international diagnostic criteria, including the DSM-IV and ICD-10.

The MINI used in the Lifelines cohort is restricted to the following diagnoses: major depressive episode, dysthymia, panic disorder, agoraphobia, social phobia and generalized anxiety disorder.



Meurs et al., 2016 DOI:10.1097

### Ruff Figural Fluency Test (RFFT)



The RFFT is a measure of nonverbal fluency, a cognitive function, which is the ability to utilize one or more strategies that maximize production of responses and avoid response repetition. The RFFT is a valuable measure for executive cognitive (dis)functioning.

### The Mini-Mental State Examination (MMSE)



This is a tool that is used to systematically and thoroughly assess mental status. The MMSE is effective as a screening tool for cognitive impairment. It is an 11-question measure that tests five areas of cognitive function: orientation, registration, attention and calculation, recall, and language.

### Cognitive function

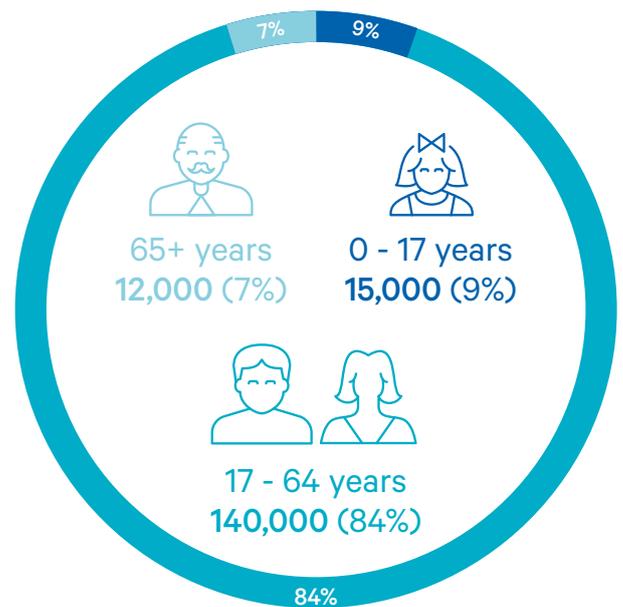


The Cogstate is a brief battery test at follow-up, including a detection task (psychomotor function/speed of processing), identification task (visual attention/vigilance), one back task (working memory) and one card learning task (visual learning & memory).



## lifelines cohort and biobank

Lifelines is a large, multi-generational cohort study that includes over 167,000 participants from the northern population of the Netherlands. Lifelines works with a combination of questionnaires, measurements and biological samples; thus, providing a unique source for research purposes. Participants from three generations are followed for at least 30 years, to obtain insight into healthy ageing and the main factors relating to the onset and progression of diseases. Every 1.5 years, participants complete a questionnaire, in which they provide a wide variety of data. In addition, once every 5 years, participants are invited to visit a Lifelines location for a physical examination. During this visit, biological samples are collected and several measurements and tests are conducted. Biological samples are stored at  $-80^{\circ}\text{C}$  to ensure high quality and long-term preservation.



total: 167,000 participants

## available data & biological samples

### Measurements:

- anthropometry
- blood pressure
- ECG
- lung function
- cognitive tests
- psychiatric interview
- skin autofluorescence

### Biological samples:

- blood (fasting sample)
- 24h urine
- faeces
- scalp hair
- DNA

### Follow up questionnaires:

- medical history
- lifestyle
- nutrition
- physical activity
- social-demographic factors
- quality of life
- symptoms
- personality
- stress
- social context
- other