

# METHODOLOGY: RESULTS FROM THE SIXTH BELHEALTH WAVE

## 1. Data collection

The data collection for the 6<sup>th</sup> BELHEALTH online survey was carried out between June 20 and July 12, 2024. The survey is directed at adults (18 years and older) living in Belgium who have agreed to be part of the BELHEALTH cohort (i.e. 10,399 people). The survey was developed with the LimeSurvey software.

The following conditions had to be accepted before accessing the survey:

- Participation in the survey is voluntary, and participation can be stopped at any time;
- All information provided will only be used for the purposes of the study;
- Sciensano will only use the results of the survey to create general statistics, and individual data will never be passed on to third parties;
- The personal data collected will only be kept for the duration of the project.

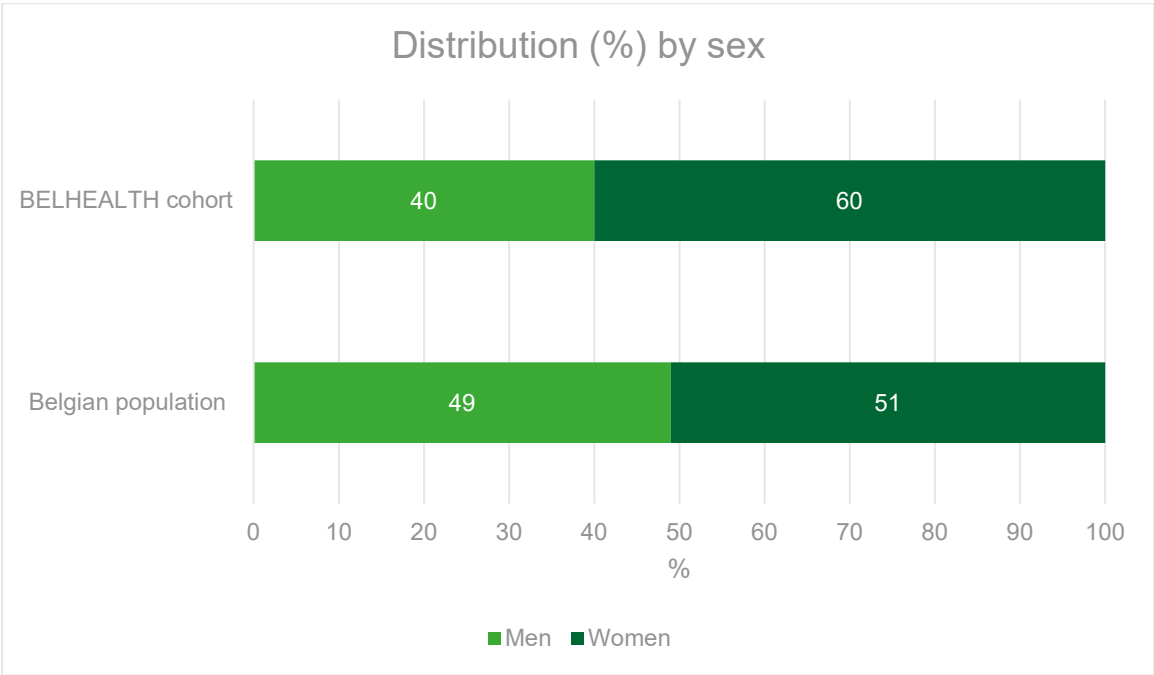
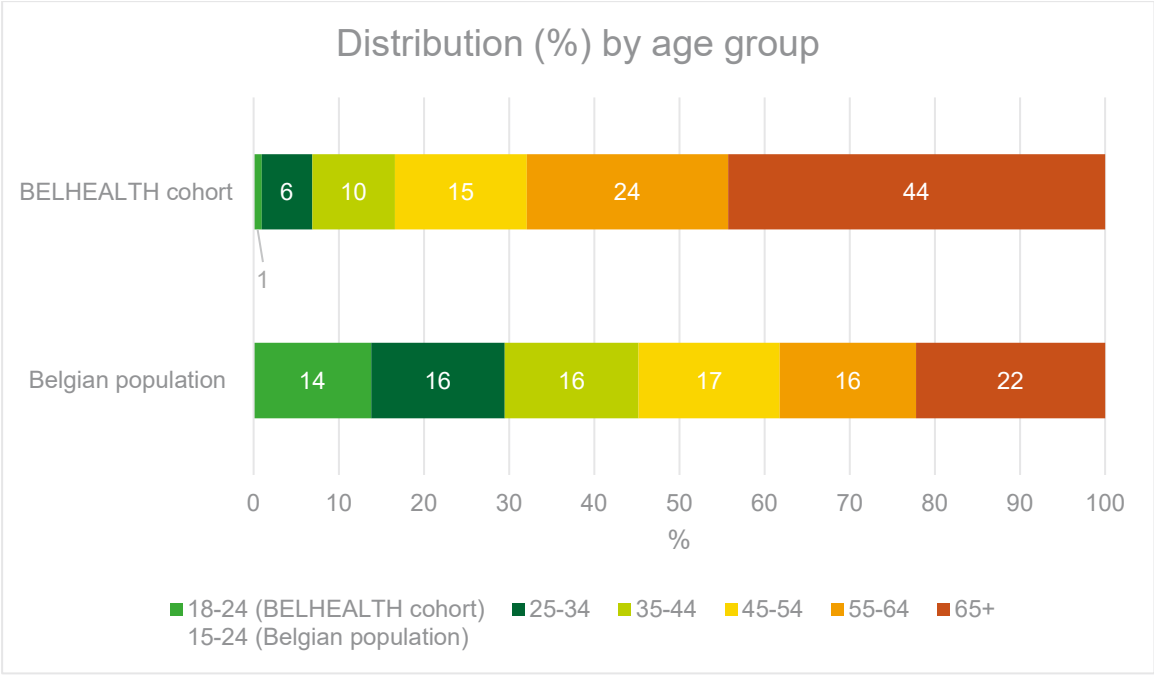
Among the cohort members, 6,461 responded to the survey: they provided at least information on their age, sex, education level and postal code of residence in the sixth or one of the previous waves.

Besides contacting the cohort members, we also launched a call for new participants to take part in the survey. This call was launched online on LinkedIn, X and Facebook. Furthermore, organizations for youth and universities were contacted and asked to share our invitation on their communication channels. A total of 164 new participants completed the survey: they provided at least information on their age, sex, education level and postal code of residence. Among these, 109 agreed to become a member of the cohort and to be contacted for future waves.

Overall, **6,625** persons participated in the 6<sup>th</sup> survey, including the participants of the existing cohort and the new participants.

## 2. Profile of participants

The following figures give an overview of the composition of the BELHEALTH cohort compared with the composition of the Belgian population in 2019.



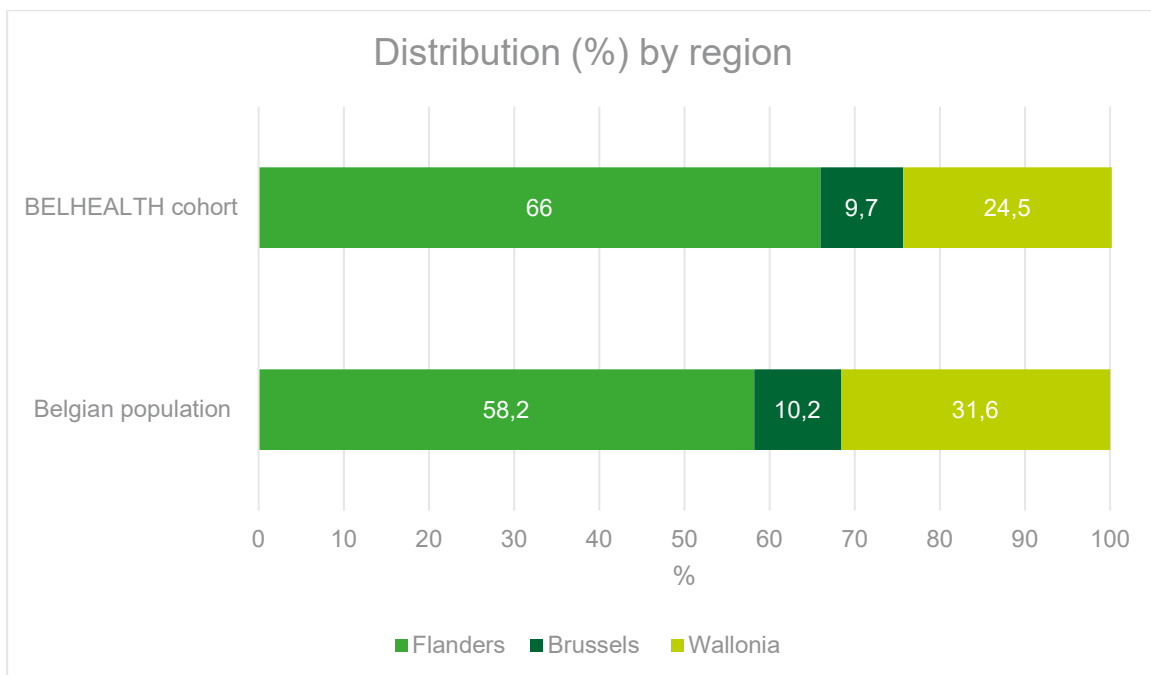
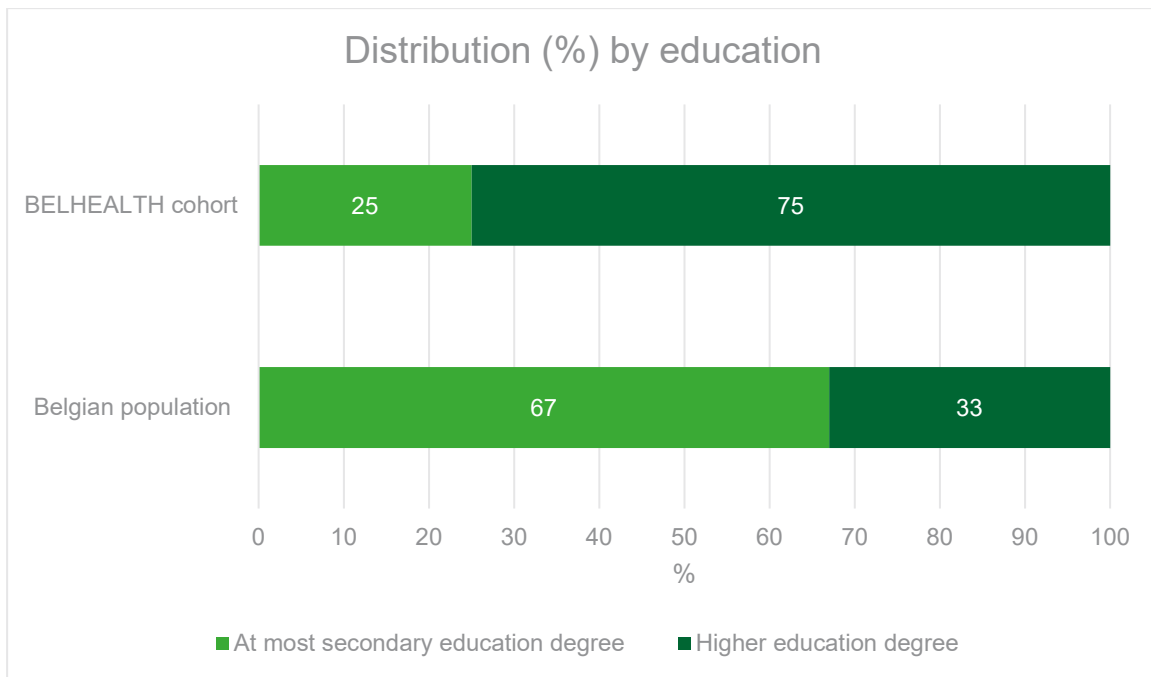


Table 1 gives an overview of the number and proportion of people aged 18 and over, broken down by sex and age group, who took part in the 6<sup>th</sup> BELHEALTH survey.

**Table 1 | Profile of the participants of the 6<sup>th</sup> BELHEALTH survey, by sex and age group, June 2024**

	Number of men (%)	Number of women (%)	Total number (%)
18-24 years	16 (0.2%)	46 (0.7%)	62 (0.9%)
25-34 years	106 (1.6%)	289 (4.4%)	395 (6.0%)
35-44 years	204 (3.1%)	437 (6.6%)	641 (9.7%)
45-54 years	306 (4.6%)	720 (10.9%)	1,026 (15.5%)
55-64 years	574 (8.7%)	993 (15.0%)	1,567 (23.7%)

65+ years	1,430 (21.6%)	1,504 (22.7%)	2,934 (44.3%)
<b>Total</b>	<b>2,636 (39.8%)</b>	<b>3,989 (60.2%)</b>	<b>6,625 (100%)</b>

### 3. Weights

Because some groups were under-represented in our cohort (for example men and young people), a weighting adjustment (post-stratification) was used in the analyses to better match the distribution in the Belgian population and to obtain more accurate estimates. This technique consists of using the information on the actual composition of the population in Belgium (here in terms of gender, age group, education, and province) to adjust the participants' data to the exact distribution when calculating the survey results:

- The “exact” composition of the Belgian population (aged 15 years and older) by gender, age group, and province comes from the data on the composition of the population on 1 January 2019, calculated by Statbel;
- The composition of the population by level of education is based on the results of the Labour Force Survey 2018 (LFS), organized by Statbel. Two education groups were distinguished: people with at most a secondary (higher) education degree and people with a higher education degree.

We formed subgroups (called “strata”) in both the Belgian population and the BELHEALTH participants, based on a cross-reference between gender, age group, province, and education level. Weights were obtained by dividing, per stratum, the number of people in the population by the number of participants in the survey. An upper limit for the weights was then established, defined as the minimum value of all weights multiplied by 100. Any weights exceeding this upper limit were replaced to match the upper limit.

## 4. Questions and indicators

### 4.1. ANXIETY AND DEPRESSION

The proportion of anxiety and depressive disorders was measured by the GAD-7 scale (General Anxiety Disorder) and the PHQ-9 scale (Patient Health Questionnaire), respectively.

Questions of the GAD-7 (anxiety disorders)

**AD.01.** In the past 2 weeks, have you encountered difficulties such as:

(1. No, not at all / 2. Yes, several days / 3. Yes, more than half the time / 4. Yes, nearly every day)

01. Feeling nervous, anxious or on edge
02. Not being able to stop or control worrying
03. Worrying too much about different things
04. Having trouble relaxing
05. Being so restless that it is hard to sit still
06. Becoming easily annoyed or irritable
07. Feeling afraid as if something awful might happen

Questions of the PHQ-9 (depressive disorders)

08. Little interest or pleasure in doing things

09. Feeling down, depressed, or hopeless
10. Trouble falling or staying asleep, or sleeping too much
11. Feeling tired or having little energy
12. Poor appetite or overeating
13. Feeling bad about yourself or that you are a failure or have let yourself or your family down
14. Trouble concentrating on things, such as reading the newspaper or watching television
15. Moving or speaking so slowly that other people could have noticed? Or the opposite: being so fidgety or restless that you have been moving around a lot more than usual
16. Thoughts that you would be better off if you were no longer alive

The following indicators were calculated:

**AD\_1** Percentage of the people with generalized anxiety disorder (threshold value of 10+ from the GAD-7). The indicator is calculated by summing the scores of each item on the scale, after recoding them to [0-3] where the value 0 represents “not at all” and the value 3 represents “nearly every day”. The total score - ranging between 0 and 21 - is then dichotomized, with the value 10+ being used to identify individuals with generalized anxiety disorder.

**AD\_6** Percentage of the people with a depressive disorder. Depressive disorder is defined as any of a major depression disorder or another type of depression. The indicator is calculated by summing the scores of each item on the scale, after recoding them to [0-3] where the value 0 represents “not at all” and the value 3 represents “nearly every day”. To identify people with a depressive disorder, at least 2 out of the 9 symptoms (items 08-16) must be scored as ‘More than half the days’ (score of 2) or ‘Nearly every day’ (score of 3), and at least one of the first two symptoms (item 08 or 09) must be included. Item 16 (thoughts of death) is counted as a symptom if present at all (score of 1 or more).

## 4.2. SOCIAL SUPPORT

Participants were asked to rate how often they have contact with parents, children, friends, and acquaintances and from whom they received emotional and practical support.

**SO.05.** How often do you usually have contact with parents, children, friends, acquaintances, etc.?  
(1. More than once a week / 2. Once a week / 3. At least once a month / 4. About once a year / 5. Never)

**SO.06.** Over the past 12 months, who has provided you with emotional or practical support? (Check all that apply)

01. Spouse/Partner
02. Parent(s) (Mother, father, step-mother, step-father)
03. Child(ren)
04. Family (other than parents, or children)
05. Friend(s)
06. (Ex)-colleague/co-worker
07. Neighbor
08. Healthcare provider(s)
09. Minister, priest, or clergy
10. Other(s)
11. Nobody

## 4.3. LONELINESS

The 6-item DeJong Gierveld Loneliness Scale was used to assess loneliness<sup>1</sup>.

<sup>1</sup>J. De Jong Gierveld and T. Van Tilburg, Research on Aging 2006, 28, 582-598

**SR.01.** To what extent do each of the following statements apply to you?

(1. Yes / 2. More or less / 3. No)

01. I experience a general sense of emptiness
02. There are plenty of people I can rely on when I have problems
03. There are many people I can trust completely
04. There are enough people I feel close to
05. I miss having people around me
06. I often feel rejected

The following indicators were calculated:

**SR\_1** Loneliness score (0-6). The score on items 1, 5 and 6 were reversed. A score of 1 was then recoded to 0 and a score of 2 and 3 to 1. The scores were summed across all items. If more than 1 answer was missing, the score was set to missing.

**SR\_2** Loneliness categories. The loneliness score (SR\_1) was used to create three categories: not lonely (score of 0 or 1), moderately lonely (score of 2, 3 or 4) and severely lonely (a score of 5 or 6).

#### 4.4. PERCEIVED MENTAL HEALTH STIGMA

The Stigma-9 Questionnaire was used to assess perceived mental health stigma.<sup>2</sup>

**MHS.02.** In your opinion, how do most people perceive someone who experiences mental health problems? Please rate how much you agree with the following statements.

(1. Disagree / 2. Somewhat disagree / 3. Somewhat agree / 4. Agree)

I think that most people ...

01. ... take the opinion of someone who experiences mental health problems less seriously
02. ... consider someone who experiences mental health problems to be dangerous
03. ... hesitate to do business with someone who experiences mental health problems
04. ... think badly of someone who experiences mental health problems
05. ... consider mental health problems to be a sign of personal weakness
06. ... hesitate to entrust their child with someone who experiences mental health problems
07. ... do not even take a look at an application from someone who experiences mental health problems
08. ... do not enter into a relationship with someone who experiences mental health problems
09. ... feel uneasy when someone who experiences mental health problems moves into the neighborhood

The following indicator was calculated:

**MHS\_2** Perceived mental health stigma score (0-27, the higher the score, the higher the perceived mental health stigma). The scores for the answer categories were recoded into 0 = disagree, 1 = somewhat disagree, 2 = somewhat agree and 3 = agree. The scores on each item were then summed. If more than two values were missing, the score was set to missing.

#### 4.5. OPTIMISM

The life orientation test<sup>3</sup> was used to assess optimism.

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<sup>2</sup>Gierk, B., Löwe, B., Murray, A. M., & Kohlmann, S. (2018). Assessment of perceived mental health-related stigma: The Stigma-9 Questionnaire (STIG-9). *Psychiatry Research*, 270, 822–830. <https://doi.org/10.1016/j.psychres.2018.10.026>

<sup>3</sup>Scheier, M.F., Carver, C.S., & Bridges, M.W. (1994). Distinguishing optimism from neuroticism (and trait anxiety, self-mastery, and self-esteem): a reevaluation of the life orientation test. *Journal of personality and social psychology*, 67(6), 1063–1078.

**PMH.08.** Please rate how much you agree with the following statements:  
(1. Strongly disagree / 2. Disagree / 3. Neutral / 4. Agree 5. Strongly agree)

01. In uncertain times, I usually expect the best
02. It is easy for me to relax
03. If something can go wrong for me, it will
04. I am always optimistic about my future
05. I enjoy my friends a lot
06. It is important for me to keep busy
07. I hardly ever expect things to go my way
08. I do not get upset too easily
09. I rarely count on good things happening to me
10. Overall, I expect more good things to happen to me than bad

The following indicator was calculated:

**PMH08\_1** Optimism score (0-24, the higher, the more optimistic). The score on items 3, 7 and 9 were reversed. Next, 1 was subtracted from the scores on items 1, 3, 4, 7, 9 and 10, and these scores were summed. If one or two scores on these items were missing, then the missing values were replaced by the mean of the available scores on these items. If more than two values were missing, the score was set to missing.

## 5. Statistical analyses

For the variables loneliness, perceived mental health stigma and optimism, logistic and linear models were used to investigate differences between age groups, sex, educational levels, regions and household types.

Logistic regression models were used to investigate the relationship between anxiety and depression on the one hand and loneliness, perceived mental health stigma and optimism on the other hand. These models were controlled for age, sex and education level.

SAS 9.4. software was used for the analyses. The proc surveyfreq, surveylogistic, surveymeans and surveyreg statements were used.

### Questions?

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- visit our [website](#) Belgian Health and Well-being Cohort