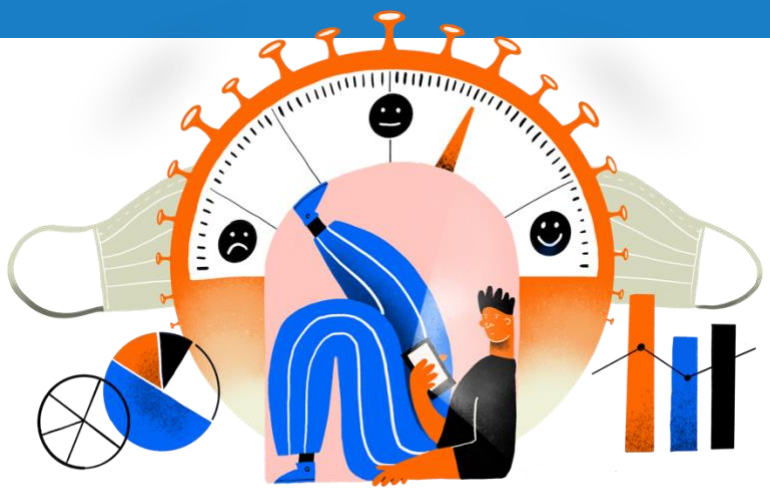
REPORT 25

The corona numbers: motivation matters!

The Motivation Barometer

Authors (in alphabetical order): Olivier Klein, Olivier Luminet, Sofie Morbée, Mathias Schmitz, Omer Van den Bergh, Pascaline Van Oost, Maarten Vansteenkiste, Joachim Waterschoot, Vincent Yzerbyt

Reference: Motivation Barometer (March 2, 2021). The corona numbers: motivation matters! Ghent University & UCLouvain, Belgium.



The Consultative Committee decided on Friday 26th of February to "not decide yet" and to take a time-out to properly assess the rising infection and hospitalization rates. For these rising numbers, reference is made to more infectious virus variants. This is, of course, a secondary reason: even more infectious variants depend primarily on our behavior. And this behavior depends on motivation and other behavioral determinants. This is where the problem has been for months now: all kinds of strategies have been tried, ranging from motivational statements such as "hang in there" or "use your common sense", fear induction, threats to control and severe sanctions, to culpabilization because of a lack of civic responsibility. Unfortunately, there was little impact each time. There is no magic button to quickly re-energize motivation. This requires a coherent policy over a longer period, inspired by evidence-based insights.
Hopefully, the latest Motivation Barometer data in this report (total N = 141,340; 68% women; average age = 50) can convince policy makers to really get on with this. In this unique dataset, we find that voluntary motivation robustly predicts a spike in positivity rates, infection and hospitalization rates, as well as mortality. We continually stare at epidemiological indicators that reflect the outcome of our past behavior, while the factors that predict our future behavior receive scant attention. The message from these results is therefore crystal clear: if you want to stay ahead of the epidemiological numbers instead of always chasing them, you need to invest in a motivating narrative and behavioral support framework so that people themselves find it worthwhile to adhere to the measures. We discuss the various motivational building blocks of such a coherent plan to provide perspective and greater mental peace for the population. This plan should realistically incorporate the gradual progression of the vaccination program.

Take home message

- Since mid-January, motivational support has declined, although this decline has not continued in the past week. The percentage of participants who remain fully convinced of the need for the measures fluctuates between 25% and 35%.

- Parallel to the decline in motivation, there has also been a decline in adhering to the corona measures, although there has been another slight increase in the past week.

- Motivation has strong predictive value for future COVID-19 indicators. The higher the voluntary motivation, the smaller
  - ... the peak in infections at 8 weeks.
  - ... the peak in positivity ratio at 9 weeks
  - ... the peak in hospitalizations at 10 weeks
  - ... the peak in mortality rates at 11 weeks

- The relationship between motivation and hospitalization rates is reciprocal. Higher hospitalization rates on a given day are associated with both more risk awareness and more worries that day. But only risk awareness predicts voluntary motivation and adherence on that day.

Recommendations for government

- Develop a coherent plan with goals and intermediate targets, linked to our behavior, to give the population real perspective. All the building blocks to do so are in place.

- Invest in clear, systematic, and visualized communication of this plan to maintain realistic risk awareness and to have the situation perceived as predictable and controllable.

- Avoid inducing anxiety for contamination of ourselves or our loved ones to keep people motivated.

- Take on the role of a coach who gets the population to think and follow along with this plan, guiding them through the crisis in a motivating way.

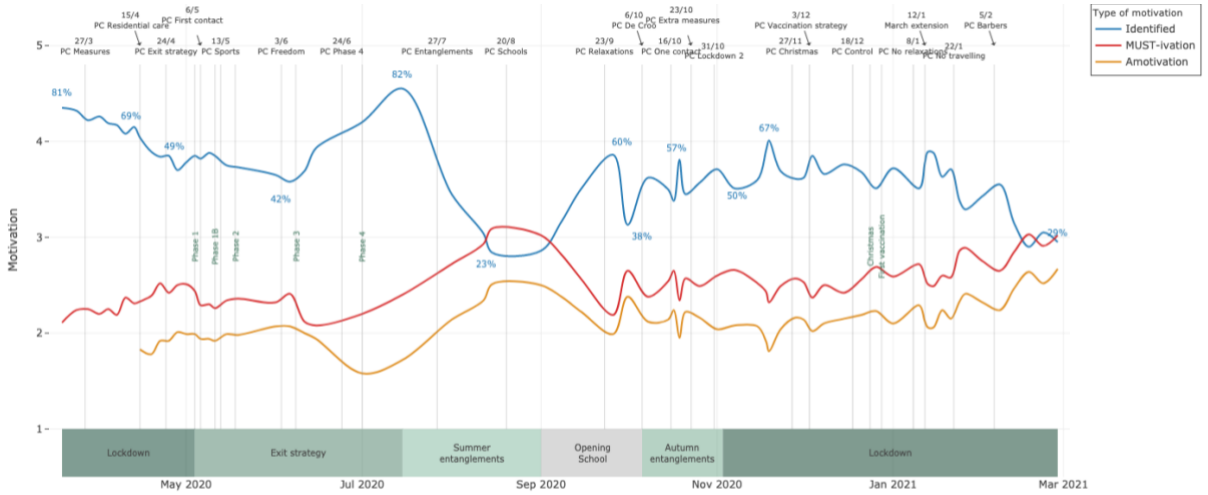
- Initiate projects that encourage solidarity both to support motivation for a common goal and mental well-being.

Question 1: How strong is the voluntary motivation for avoiding a third wave?

The Consultative Committee announced on Friday, February 26th that it was taking a "time-out" and postponing new decisions for a week. It was judged that rising corona numbers made it impossible to relax measurements and that stricter measures might be required. But is there still sufficient voluntary motivation among the population? During the second lockdown until mid-January, 50-67% of the population kept supporting the measures, but in mid-January it began to weaken (see report #21). We heard mostly good news without continuing to see the whole picture, and with the opening of the hairdressers and other contact professions as a so-called "stimulus for our mental health" with which the government gave up its own epidemiological objectives, the gate was closed. Voluntary motivation took a big hit (see report #24): only 25% to 35% of the population remained convinced of the necessity of the measures (see Figure 1), while a sharp decline in other motivational indicators, such as risk awareness, belief in the effectiveness of the measures and the feeling that it was still possible to adhere to the measures, could also be observed. During the last week, however, the decrease slowed down and even a slight increase was noticeable.

This situation is therefore extremely worrying: the end of this second (semi-)lockdown is not yet in sight, voluntary motivation is low, and a third wave may be just around the corner. This situation is very different from after the first lockdown, which resulted in a beautiful summer that brought relative freedom. Today our well-being is under more pressure than ever.

Figure 1. Evolution of motivation during the COVID-19 crisis.



Question 2: How strong is the correlation between motivation and epidemiological rates?

Managing the pandemic will require a great deal of steering by policymakers, with scientists providing the measurement tools to determine direction. An essential objective is to prevent the situation from getting out of hand. To this end, we are constantly looking at the epidemiological numbers: the positivity ratio, infections, hospitalizations and mortality. These indicators show how we have behaved in the recent past and they often lead to new calls to (better) comply with the measures. In this way, a feedback loop is created between the epidemiological numbers and our behavior resulting in a yo-yo movement: only when the epidemiological numbers get worse, we make more efforts to make them better again. Figure 2 depicts this feedback loop between motivation, behavior, and epidemiological indicators.

An important question, therefore, is whether we can stay ahead of the epidemiological facts, i.e. the consequences of our behavior, so that a problematic situation does not first have to arise before we can make adjustments. In concrete terms: can we predict the epidemiological numbers on the basis of our motivation? If we can, we can make adjustments before the numbers go in the wrong direction.

Because we survey motivation for adherence for almost a full year (336 days), we can examine whether changes in motivation are predictive of epidemiological indicators. This is the case in a convincing manner (see Figure 3a): the greater the voluntary motivation on day X, the lower the infection rates three weeks later. This negative correlation increases each week and peaks after 9 weeks. Similarly, our motivation shows the strongest negative correlation with a peak in the positivity rate 9 weeks later, in hospitalization rates 10 weeks later, and in mortality 11 weeks later.

Strikingly, worries do not have these beneficial effects: the degree to which people are anxiously worried about their own risk of infection or that of their loved ones on any given day is not related to these epidemiological indicators (see Figure 3b).

Figure 2. Feedback cycle between motivation, behavior, and epidemiological indicators.

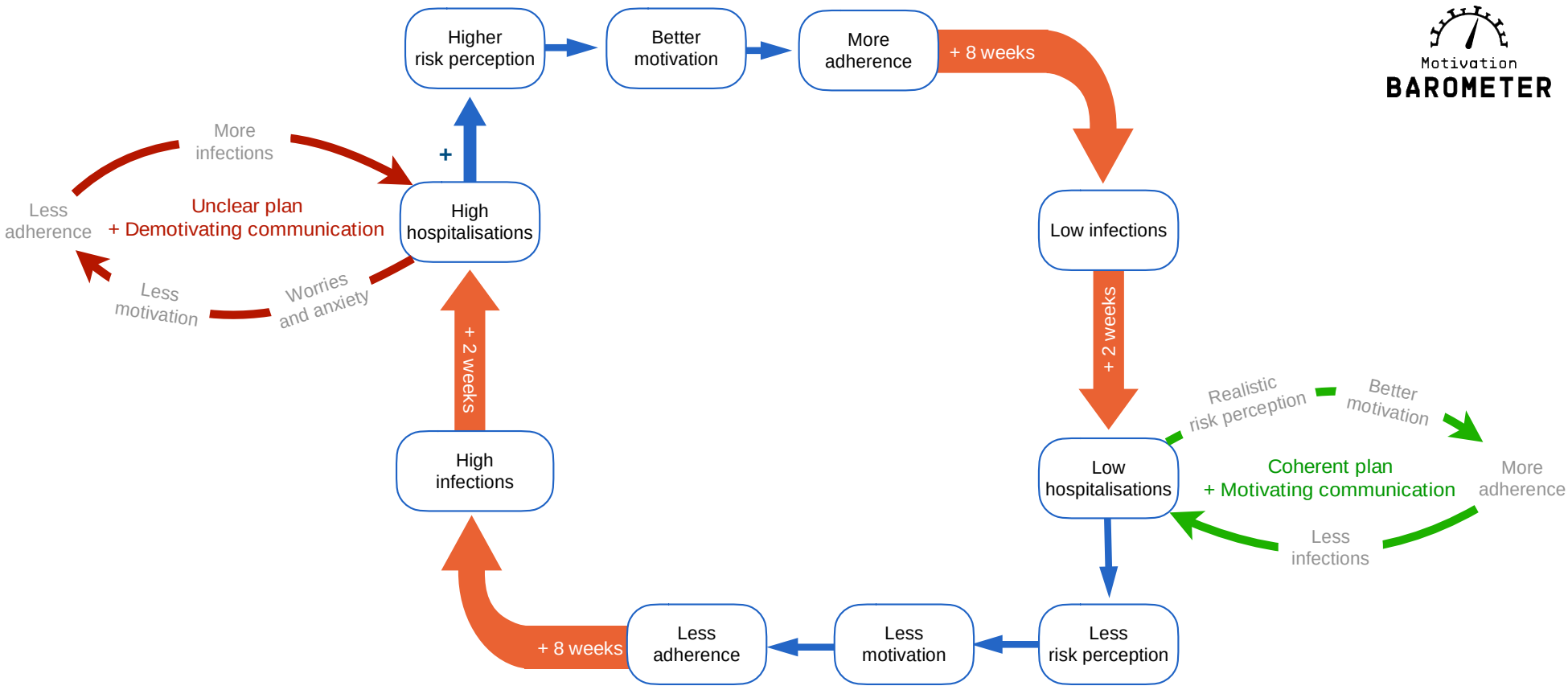


Figure 3. Unique associations between voluntary motivation and prospective epidemiological indicators (after controlling for concerns about contamination)

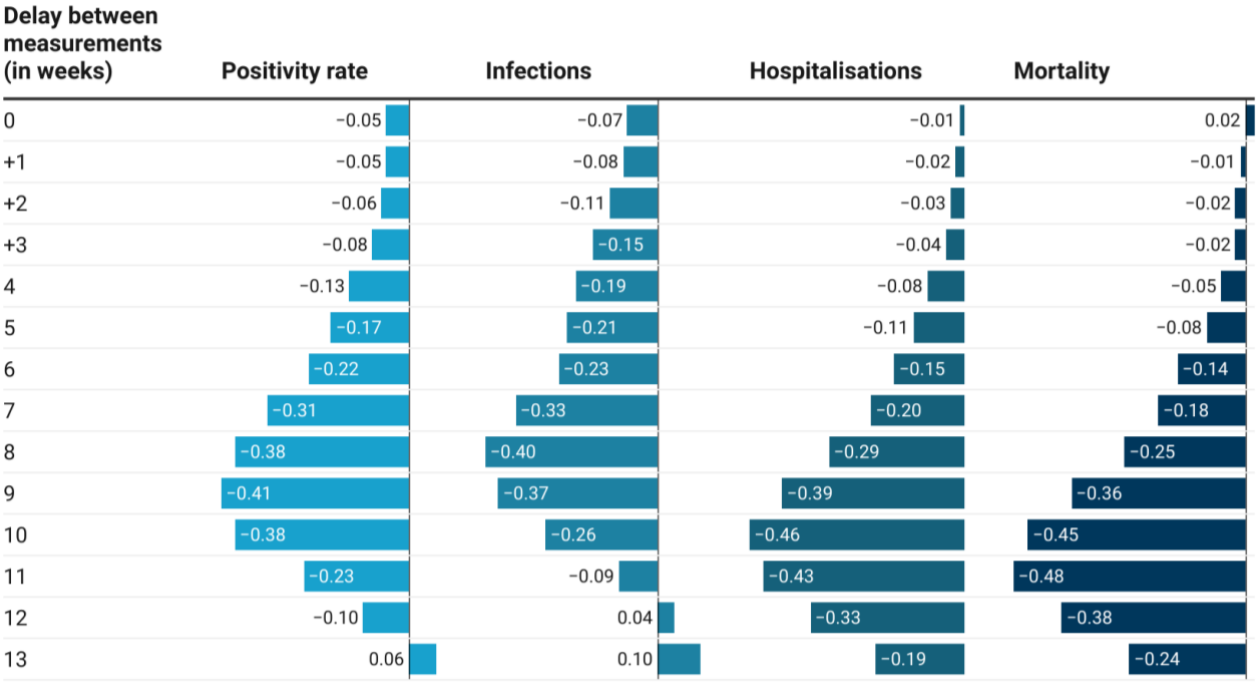


Figure 3b. Unique associations between concerns about contamination and prospective epidemiological indicators (after controlling for voluntary motivation)

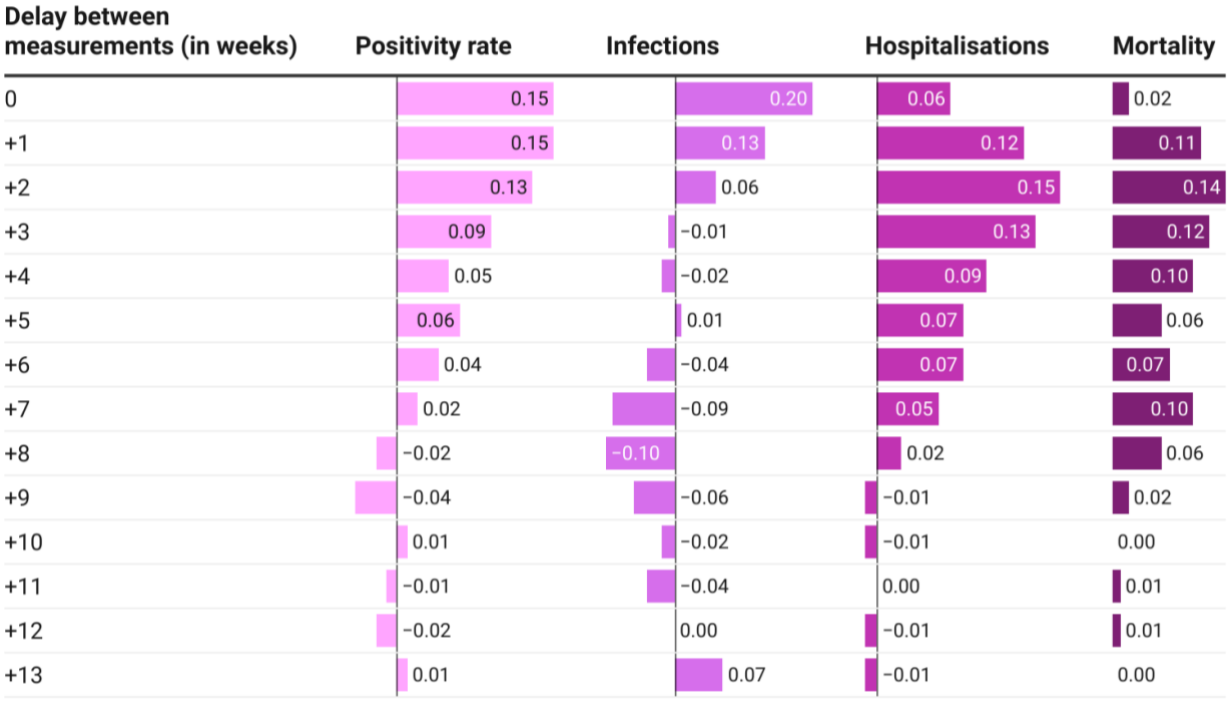
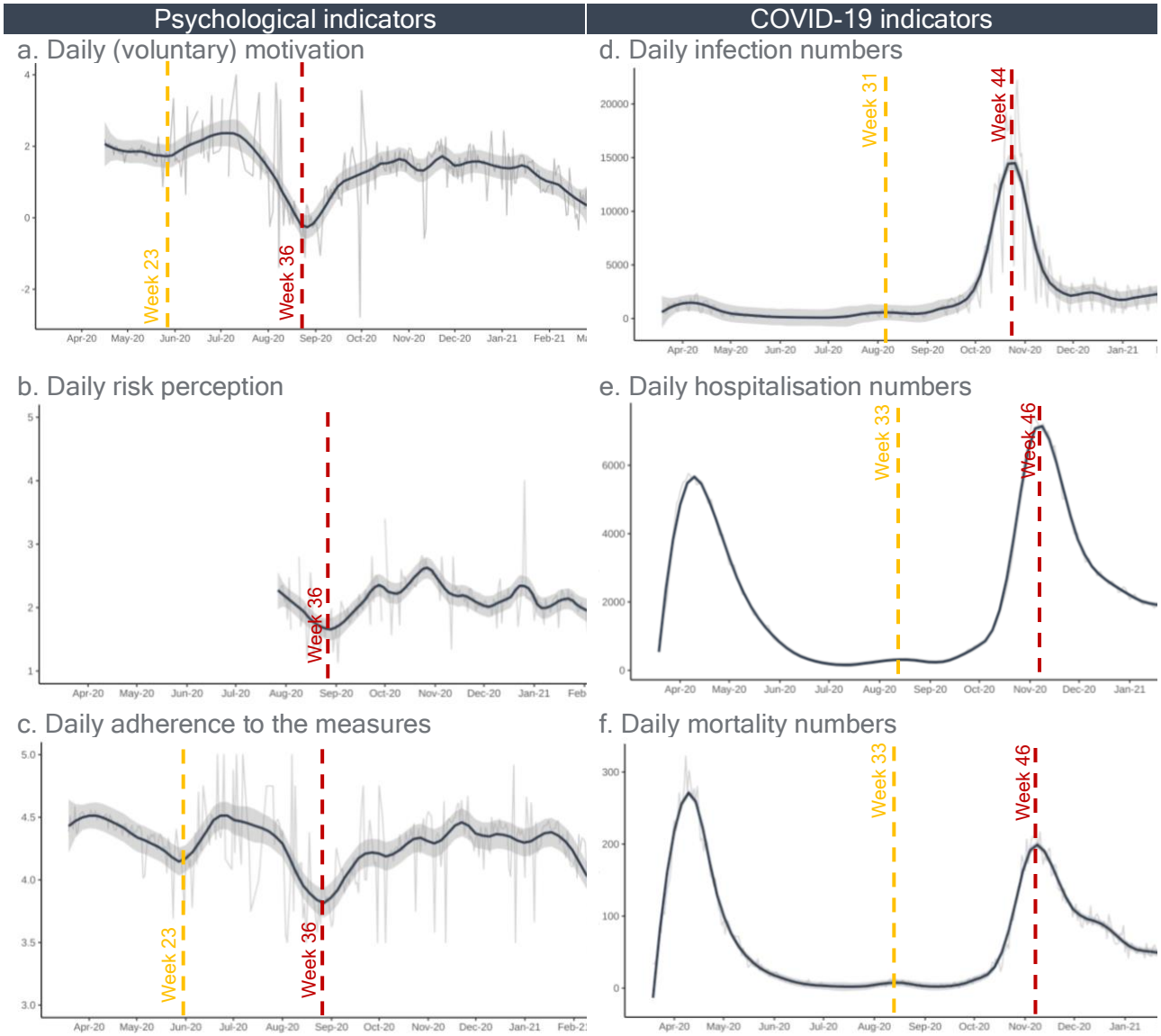


Figure 4 makes this connection concrete. The evolution in motivational parameters (voluntary motivation, risk awareness) and behavior are shown on the left and the evolution in epidemiological parameters on the right. A low point in voluntary motivation, risk awareness[1] and adherence can be seen in both late May (orange line) and late August (red line). These low levels of motivation manifest themselves a few weeks later in increased in infection rates, hospitalizations and mortality. Put another way, the peaks in corona numbers are preceded by lows in our motivation and behavior 8 to 11 weeks prior.

Figure 4. Overview of evolution in motivational, behavioral, and epidemiological indicators

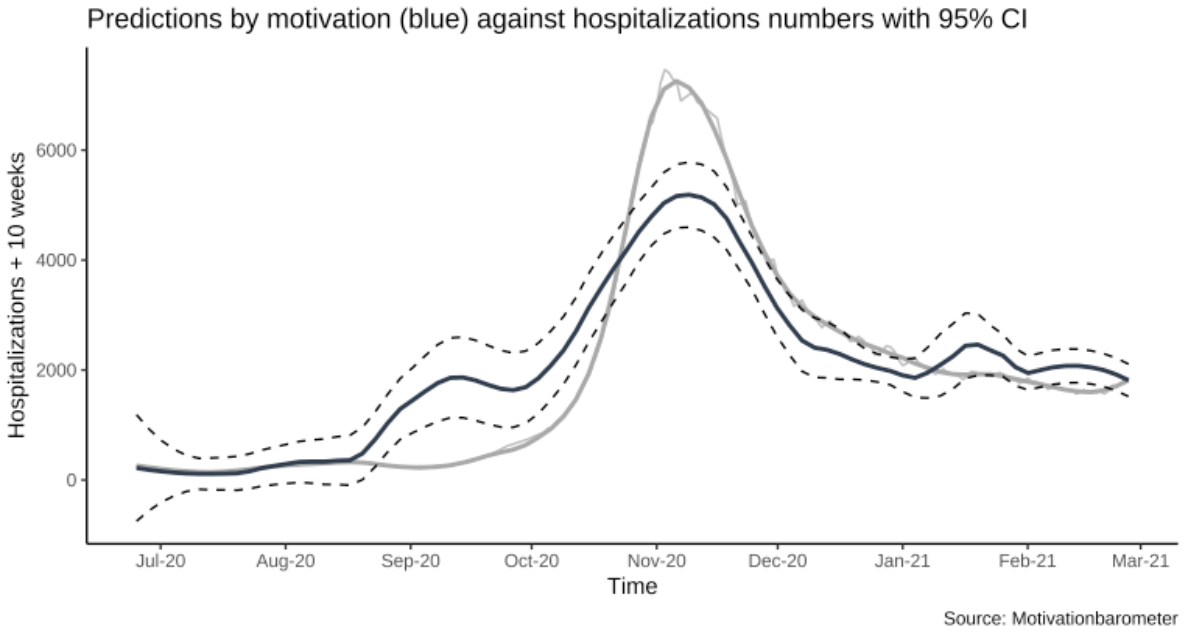


Note. Orange = low level in june (left), peek of summer wave (right);
Red = low level in june (left), peek of second wave (right)

[1] Measurements of risk awareness started August 1, 2020

To further test the predictive power of motivation, we examined the extent to which differences in daily motivation can predict corona numbers during this crisis. Because we know the effective corona numbers, we can compare our predictions with the real observations. The black line in Figure 5 is the predicted evolution in hospitalization rates based on voluntary motivation (after controlling for vacation period and seasonal effects). The dotted lines above and below this line refer to the 95% confidence interval to capture the uncertainty of the model. The full gray line refers to the actual numbers. Overall, motivation proves to be a very reliable predictor.

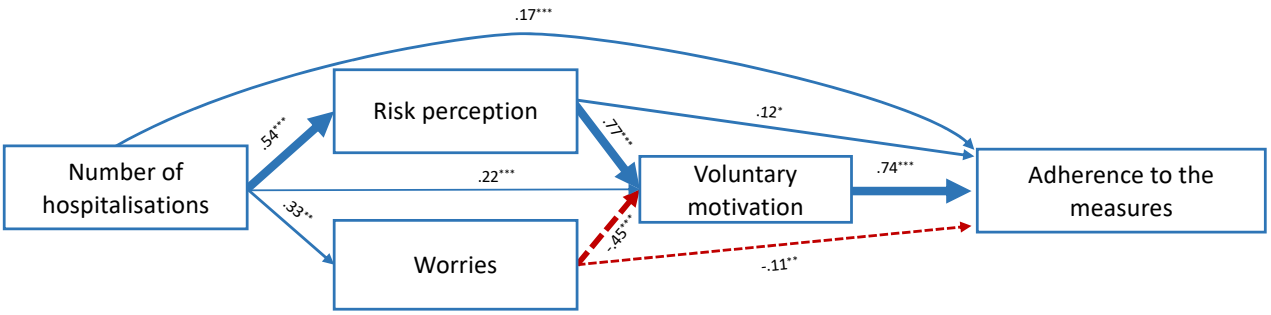
Figure 5. Predicted evolution in hospitalization rates based on voluntary motivation



Question 3: Do higher hospitalization rates act as a source of motivation?

The relationship between motivation and various epidemiological indicators is undoubtedly reciprocal. Motivation not only prevents hospitalizations; hospitalization rates can also drive motivation. Indeed, Figure 6 shows that higher daily rates in hospitalizations are associated with higher voluntary motivation on that day, which explains why we are more compliant on such days. However, hospitalization rates are a double-edged sword. To the extent that they contribute to higher risk awareness, they strengthen the motivation to follow the measures. To the extent that they contribute to more worries about being infected, they negatively correlate with the motivation to follow the measures. The trick, then, is to keep risk awareness high without causing worry and anxiety. Indeed, worries do not lead to better adherence to the measures; it is emotionally exhausting and undermines our mental health.

Figure 6. Model of motivational and epidemiological indicators on day X



Question 4: How do you bring real perspective?

For many months the people have been asking for perspective. This demand is legitimate because today we continue to be uncertain: it is unclear what the strategy is and what the intermediate goals are. However, all the elements are present to draw up a coherent transition plan. Table 1 lists these elements, each time highlighting their concretization and motivational and psychological benefits. The advantage of such a coherent plan is that the population can think and follow along, so that the situation can be experienced as predictable and controllable, and thus people can autonomously choose to go for these goals. In this way the optimal conditions are created under which people find it worthwhile to take responsibility for their behaviour.

The vaccination program is, of course, a particularly important element in providing perspective. But as long as a sufficiently high vaccination rate is still far in the future without step-by-step clear implications for our freedom, it contributes little to the motivation to comply. Including the progress of the vaccination program into the plan will therefore contribute greatly to the concretization of our perspective on greater freedom and to the sense of an equitable "deal". In this deal, the population is asked to make an effort to comply in exchange for a strong government commitment to an efficiently run vaccination program.

Table 1. *Motivational building blocks for a coherent plan regarding the corona measures*

Building Blocks	Note	Motivational and psychological benefits
Contact budget	Estimated amount of virologic leeway, depending on the risk level of the pandemic.	Communicating transparently about the size of the virologic leeway (e.g., using pie charts) ensures a **realistic awareness of risk** and a **better understanding** of the difficult choices that need to be made.
Thresholds	Critical thresholds for relaxations and stricter measures. Threshold values in a downward trend should be reached for a longer period of time in order to shift off cautiously and avoid a yo-yo effect.	A sequence of realistic threshold values act as **motivating goals, which** the population can gather around. This creates a sense of **belonging**, gives **direction** to our behavior, and emphasizes the **key role of our behavior** in achieving those goals. It also avoids giving time-based perspective, disconnected from our behavior.
Alarm levels	Determination of alarm levels depending on defined threshold values.	Visualized communication about these alarm levels provides **overview and a shared understanding of the risk level of the situation**. In this way, unjustified messages of fear and threat, but also hope, can be avoided. Daily numbers (e.g. 6% increase) can thus be put into perspective and help avoid the disadvantages of an infodemic situation.
Measures	Relaxations (phase-out sequence) and stricter measures (acceleration sequence), the epidemiological, psychological and economic impact of which has been estimated.	Transparency about the multi-criteria impact of measures ensures a **balanced choice** of measures that go with each alarm level and corresponding contact budget. A clear acceleration plan creates **confidence** and prevents fear from taking over, if the numbers evolve negatively.
Core values	Pressures on health care, mental health, concern for education, and keeping the economy viable are core values.	Core values allow for prioritization of actions taken and firmly **ground** decisions, making the sequence of actions more readily accepted.
Visualized protocols	Concretization of relaxations and stricter measures within protocols.	Visualized protocols provide more accessible communication and **clarity** so people know what behavior is required of them.

Conclusion: a motivational view of the dynamics within this crisis

Prime Minister De Croo indicated in early 2021 that his biggest challenge is to keep the population motivated. The results from this report show that this is needed more than ever, as voluntary motivation is decreasing, but is also more useful than ever, as voluntary motivation robustly predicts infections, hospitalizations and mortality several weeks later.

If the correlation between motivation and these past epidemiological indicators recurs in the coming weeks, then it can be expected that rates will continue to rise. More infectious variants will drive this expected effect, while increasing vaccination coverage will dampen the effect. Because we currently estimate the impact of the former factor to be greater than the latter, it is time to finalize a coherent plan to provide the population with a true perspective in which vaccination progress is embedded. A statement like "hang in there" will only have meaning if the population has a clear view of the collective goal and the consequences of its efforts. And "common sense" and civility only emerge when you allow people to participate. Under these conditions, commitment and sustained motivation grows and people better accept the burden of this marathon.

CONTACT INFORMATION

- **Principal Investigator:**
  Prof. Dr. Maarten Vansteenkiste (Maarten.Vansteenkiste@ugent.be)

- **Co-investigators:**
  Prof. Dr. Omer Van den Bergh (Omer. Vandenbergh@kuleuven.be)
  Prof. Dr. Olivier Klein (Olivier.Klein@ulb.be)
  Prof. Dr. Olivier Luminet (Olivier. Luminet@uclouvain.be)
  Prof. Dr. Vincent Yzerbyt (Vincent.Yzerbyt@uclouvain.be)

- **Conservation and dissemination questionnaire:**
  Dra. Sofie Morbee (Sofie.Morbee@ugent.be)
  Dra. Pascaline Van Oost (Pascaline.Vanoost@uclouvain.be)

- **Data and Analytics:**
  Drs. Joachim Waterschoot (Joachim.Waterschoot@ugent.be)
  Dr. Mathias Schmitz (Mathias.Schmitz@uclouvain.be)

www.motivationbarometer.com

Motivation BAROMETER