# REPORT40 :

The CST, mandatory vaccination, 1G policy or stop everything ?

The Motivation Barometer

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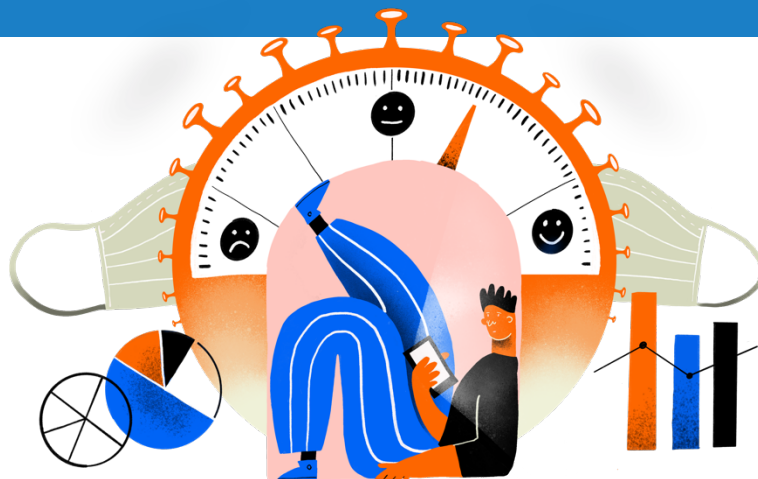
After almost 2 years of corona crisis, the government is facing a crucial decision. Will it introduce further loosening regarding the Covid Safe Ticket (CST), will it maintain the current CST policy or will it increase the pressure to get as many people as possible vaccinated? What are the likely psychological consequences if a vaccine pass or a mandatory vaccination are introduced? Various experts from different disciplines (i.e., medical, economic, educational, psychological) were invited to a parliamentary debate on this fascinating but delicate issue. In this report we evaluate the support for four policy options (i.e., abolish CST, maintain CST policy, introduce vaccine pass and compulsory vaccination) and we deepen the psychological mechanisms that explain the (lack of) support for a policy option. The following questions are central to this report:

1. Does support for various policy options depend on the number of vaccine doses someone has received to date, and what is the role of risk perception?

2. What psychological advantages and disadvantages are associated with different policy options, and which policy option encourages vaccination?

3. What are the differences between a 1G policy and mandatory vaccination and do they encourage vaccination?

4. What factors prevent unvaccinated people from getting vaccinated? Are they related to attitudes toward mandatory vaccination?

5. What is a potentially a motivating and relational connectedness alternative?

Appendix: Methodological reflections

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Main points

- <u>Support for policy</u>: Support for a stricter policy (1G or mandatory vaccination) is low among unvaccinated and partially (i.e.1 or 2 doses) vaccinated people, even if they rate the risks of serious illness as high. They prefer that the CST be revised because this is the most direct way to increase well-being in their view. Fully vaccinated (i.e., 3 doses) with a high risk perception are favourable to a stricter policy.
  - o Support for a stricter policy has declined overall because the milder omicron variant is perceived as less virulent.
  - o If perceived risks increase again with the emergence of a more pathogenic variant, support for a stricter policy should be expected to increase, particularly among fully vaccinated people.
  - o The lower perception of risk and the lower propensity to take a risk into account among unvaccinated and partially vaccinated individuals suggests that the threat of a new variant must be very high to create support from these groups as well.

- <u>Polarization</u>: The advantages and disadvantages of these various policy options are assessed very differently and reflect the polarization of our society. Vaccinated individuals with high risk perception feel that stricter policies will benefit their autonomy, relational connectedness, and reduce their health concerns. Other groups believe that their autonomy and connectedness will increase the most if the CST is abolished. Regardless of the government's decision, trust in the policy will decrease in some groups.

- <u>Mandatory vaccination or 1G Policy</u>: Mandatory vaccination appears to be more acceptable than a vaccine pass among vaccinated people with a high risk perception.
  - o Differences in favor of mandatory vaccination among risk-aware vaccinated persons are small and subtle but psychologically meaningful, with especially higher perceived long-term benefits (i.e., increased well-being, social cohesion, and clarity; fewer worries and limitations). Partially vaccinated and unvaccinated individuals also feel that mandatory vaccination is a clearer and more transparent policy choice than a 1G policy.
  - o As risk-aware vaccinated people see benefits from a stricter policy to achieve better vaccine coverage, unvaccinated and partially vaccinated people feel that only abolishing the CST would motivate them to get vaccinated. Abolishing the CST presumably provides the physical and psychological space needed for them to come to their own decision of getting vaccinated.

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Main points

- <u>Barriers to vaccination:</u> Unvaccinated individuals in 2022 report less voluntary motivation and more barriers than unvaccinated individuals in 2020, before the vaccination campaign begins. Unvaccinated persons are a heterogeneous group underpinned by a different set of reasons preventing vaccination. Therefore, a case-by-case approach is needed if the goal is to motivate these people to be vaccinated.

- <u>Motivating and relational connectedness alternative:</u> In today's polarized society, a powerful signal of bonding and connection is necessary. Therefore, it is useful to invest in face-to-face conversations between unvaccinated people and a trusted health professional (e.g., general practioners, pharmacists, social workers). These conversations should not be instrumentalized to subtly increase vaccination coverage, but serve an end in itself: engaging with unvaccinated people about their obstacles to vaccination and properly informing them about their risks and the effects of vaccination. The ultimate goal is to enable unvaccinated people to make their own informed decision, with the help of a caring health professional supporting their autonomy.

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General information

In the last measurement wave, between 2022-01-21 and 2022-01-26, 17702 participants (11044 Dutch speakers, 62%, and 6678 French speakers, 38%) completed the questionnaire. The average age is 46 years with 46% female participants.

Vaccinated three times

- N = 7465
- Average age = 49 years (40% female, 69% Dutch speakers, 44% master's level)
- Employment status: 57% full-time, 11% part-time, 3% unemployed, 4% student and 24% retired.
- 25% had been previously infected.

Vaccinated twice

- N = 3586
- Average age = 44 years (45% female, 69% Dutch speakers, 38% master's level)
- Employment status: 69% full-time, 13% part-time, 3% unemployed, 8% student and 6% retired.
- 50% had been previously infected.

Not vaccinated or vaccinated once

- N = 6056
- Average age = 46 years (53% female, 52% Dutch speakers, 32% master's level)
- Employment status: 64% full-time, 15% part-time, 5% unemployed, 3% student and 9% retired.
- 51% had been previously infected.

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Context study

To answer the first three questions, four different policy options were presented to participants. For each of these options, basic measures (e.g., ventilation, quarantine and isolation, mouth mask requirement, etc.) were indicated as still needed to be followed.

- In the case of **the Covid-Safe-Ticket**, anyone with a CST (proof of three doses or a negative test) can participate in public life (e.g., hotel & catering, events).
- In the case of an **abolition of the CST**, anyone can participate in public life (e.g., hotel & catering, events) without the need for proof (vaccination, negative test, or recovery certificate).
- In the case of **mandatory vaccination**, a general vaccination obligation (three doses) is introduced for adults (excluding people with medical reasons). Citizens do not have to present a CST or a vaccine pass to participate in public life (e.g. hotel & catering, events). The government monitors citizens compliance with the mandatory vaccination.
- In the case of a **vaccine pass (1G policy)**, anyone with a valid vaccination certificate (three doses) can participate in public life (e.g., hotel & catering, events). A negative test or recovery certificate is no longer sufficient.

For each of these four policy options, participants indicated the extent to which they favored it (support), thought it would improve their well-being (mental health), and whether the policy option would encourage people to get vaccinated (behavioral effect). In addition, several crucial, psychological advantages and disadvantages were questionned. These are related to four themes:

- Autonomy: To what extent do they expect to experience more freedom and choice? To what extent do they think the policy option is a first step toward living without restrictions?
- Connectedness: To what extent do they expect that this policy can stimulate social cohesion in the longer term and/or create conflict ?
- Concerns: To what extent do they expect a policy option to increase concerns for their health?
- Trust in politics: To what extent do they think the policy choice is clear, fair, and open, and/or to what extent will the policy choice lead to decreased confidence in policy and will this encourage conspiracy theories?

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Question 1: Does support for various policy options depend on the number of vaccine doses and what is the role of risk perception?

The results indicate a complex but intriguing interplay between the type of policy option, participants' vaccination status, and the estimated severity of infection (risk perception). Among the results, fully vaccinated individuals (N = 7465) differ from those who received two doses (N = 3586; partial vaccination) and those who accepted none or only one dose (N = 6056)[1]. The results appear to be highly consistent for different types of outcomes.

- Overall pattern: Five of the six groups show an similar pattern of results. Only fully vaccinated individuals (three doses) who rate a moderate to high risk of severe infection deviate. Within this group, support is stronger for stricter scenarios (1G policy, CST, or mandatory vaccination) than for removing the CST (Figure 1a), they feel that stricter scenarios would benefit their overall well-being (Figure 1b). All other groups are in favor of abolishing the CST and expect a beneficial effect on their well-being if the abolition of the CST becomes a reality. Although all stricter policy options are rejected by these latter groups and a preference appears for abolishing the CST, differences can still be identified for specific outcomes (see questions 2 and 3).

- Role of vaccination status: It is very striking that the response pattern of persons who did not yet take a booster vaccine is broadly similar to the one of unvaccinated persons. For both groups, the estimation of the advantages and disadvantages of the policy choices does not depend on their risk perception. Regardless of whether unvaccinated and partially vaccinated persons perceive a small or large risk of severe infection, they support the abolition of the CST and rate similarly the psychological advantages and disadvantages of doing so. Unvaccinated and partially vaccinated people also react less strongly to perceived risks: even if they see a risk, it does not constitute a motive for them to prefer stricter scenarios.

- Distribution of participants: An important question is what percentage of the unvaccinated, partially and fully vaccinated are in the very low, low or moderate-high perceived risk group. Table 1 provides a percentage distribution of these groups. As might be expected, a higher percentage of vaccinated individuals belong to the moderate to high risk perception group, whereas the unvaccinated and partially vaccinated groups have a higher percentage of individuals with very low or rather low risk perception. Although one group of vaccinated individuals still rates the risk of severe infection as moderate to high today, this risk assessment has decreased on

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[1] Percentage-wise, this sample contains more unvaccinated individuals than in the population. As may be seen from the methodological reflections in appendix, this is taken into account in various ways.

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average compared to early January. Figure 2a shows the evolution[2] in risk awareness as a function of the number of vaccine doses: it has decreased among those who received two or three doses, although this decrease is more pronounced among those who have not yet accepted[3] a booster dose. This shift in risk perception can also explain the decline in support for mandatory vaccination (Figure 2b).

- Legitimacy: The question of whether there is a place for a compulsory vaccination or 1G policy depends on its perceived *legitimacy*. In this regard, it is essential that a stricter policy be experienced as safety-enhancing rather than coercive. The safety-enhancing character is related to the expected health benefits of vaccination. In this respect, the legitimacy of a stricter policy is related to (a) the added value of further increasing vaccine coverage, (b) the perceived efficacy of vaccines and (c) the perceived risk of severe infection, which is determined by the threatening nature of a variant and (d) the perceived risk of straining the health care system.

Conclusion: Support for a stricter policy (1G or mandatory vaccination) is low among unvaccinated and partially vaccinated people, even if they rate the risks of severe infection as high. this is the most direct way to increase well-being in their view. Fully vaccinated (i.e., 3 doses) with a high risk perception are favourable to a stricter policy. Support for a stricter policy has declined overall because the milder omicron variant is perceived as less virulent. If perceived risks increase again with the emergence of a more pathogenic variant, support for a stricter policy should be expected to increase, particularly among fully vaccinated people. However, the lower perception of risk and the lower propensity to take a risk into account among unvaccinated and partially vaccinated individuals suggests that the threat of a new variant must be very high to create support from these groups as well. In general, it is important to draw attention to the fact that vaccinated individuals should not be considered as a homogeneous group, as partially vaccinated individuals have a different response profile than fully vaccinated persons.

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[2] Note that this is not about the same group of people followed over time. Differences over time may therefore reflect not only intra-individual differences, but also differences in the composition of the sample (see also appendix for methodological considerations).

[3] In examining differences between various groups of vaccinated and unvaccinated individuals, the role of other relevant socio-demographic characteristics, such as age, gender, and educational attainment, was filtered out (see also appendix for methodological considerations).

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Figure 1a.
Support for various policy choices as a function of risk perception and vaccination status.

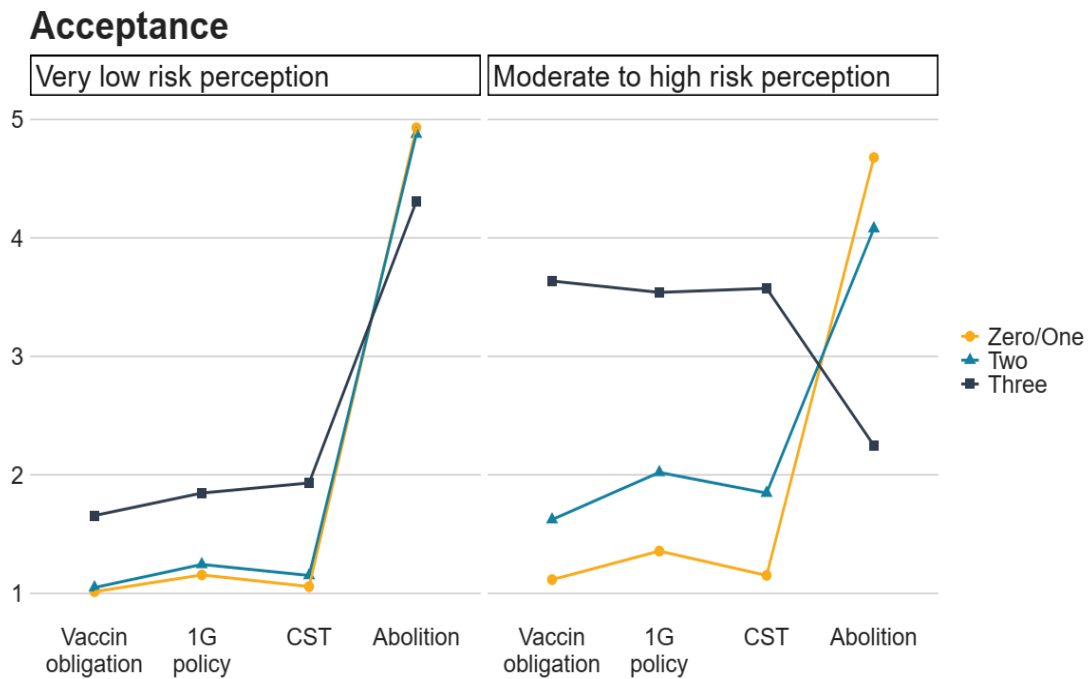*Figure 1b.*

Estimated effect on well-being of various policy choices as a function of risk perception and vaccination status.
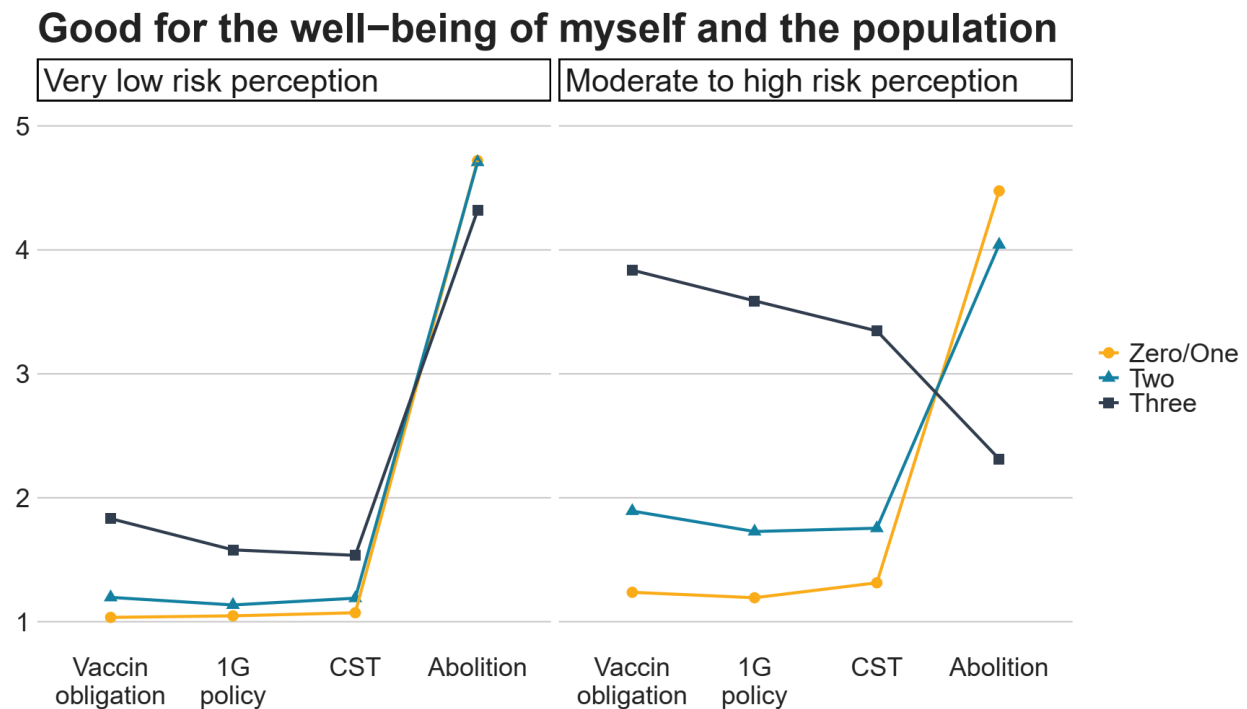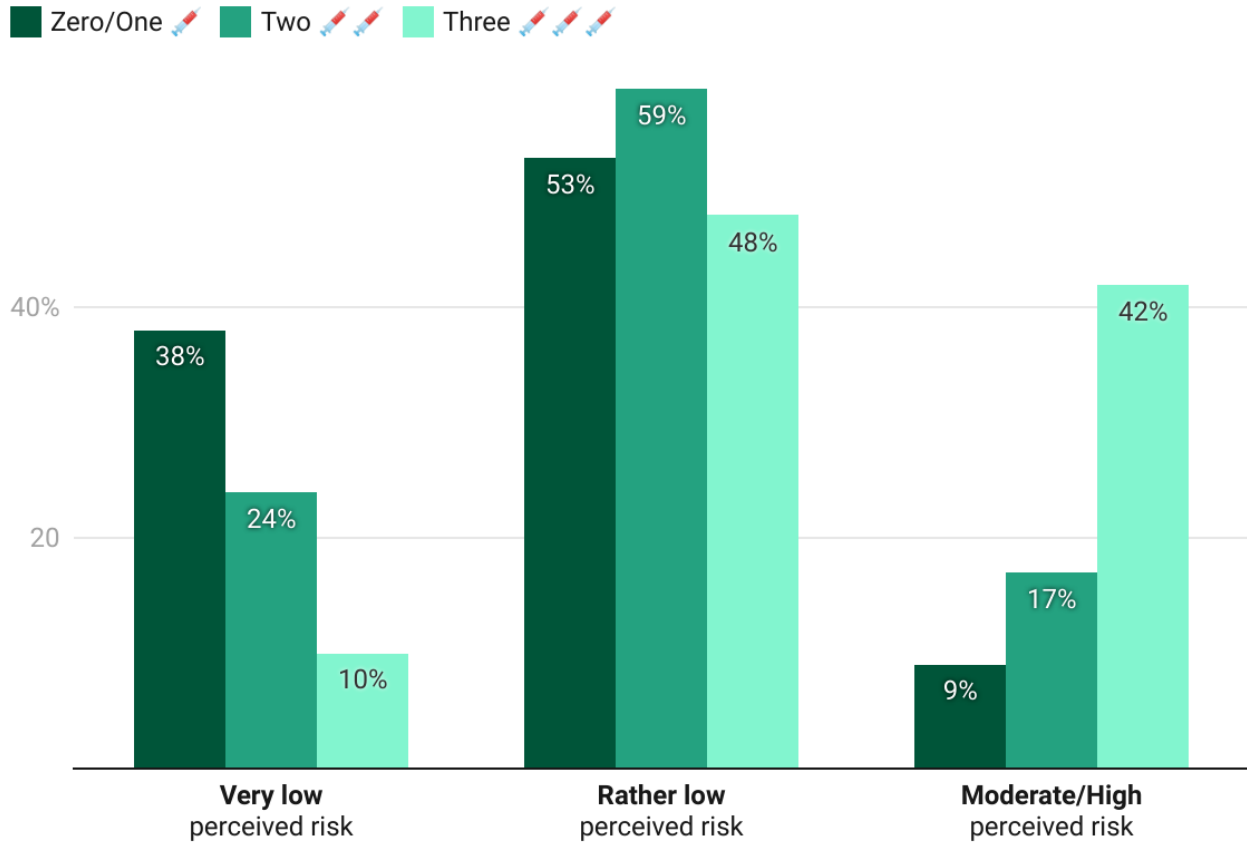
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Table 1
Estimated risks of severe infection as a function of number of vaccine doses.

Proportion of people in categories of risk perception by number of vaccination doses

■ Zero/One 💉   ■ Two 💉💉   ■ Three 💉💉💉

	Very low perceived risk	Rather low perceived risk	Moderate/High perceived risk
Zero/One	38%	53%	9%
Two	24%	59%	17%
Three	10%	48%	42%

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Figure 2.

Evolutions in risk perception with 'probability of infection' (top) and 'estimated severity of infection' (bottom) for self and population as a function of number of vaccine doses.

Evolution of risk perception to be infected with COVID-19
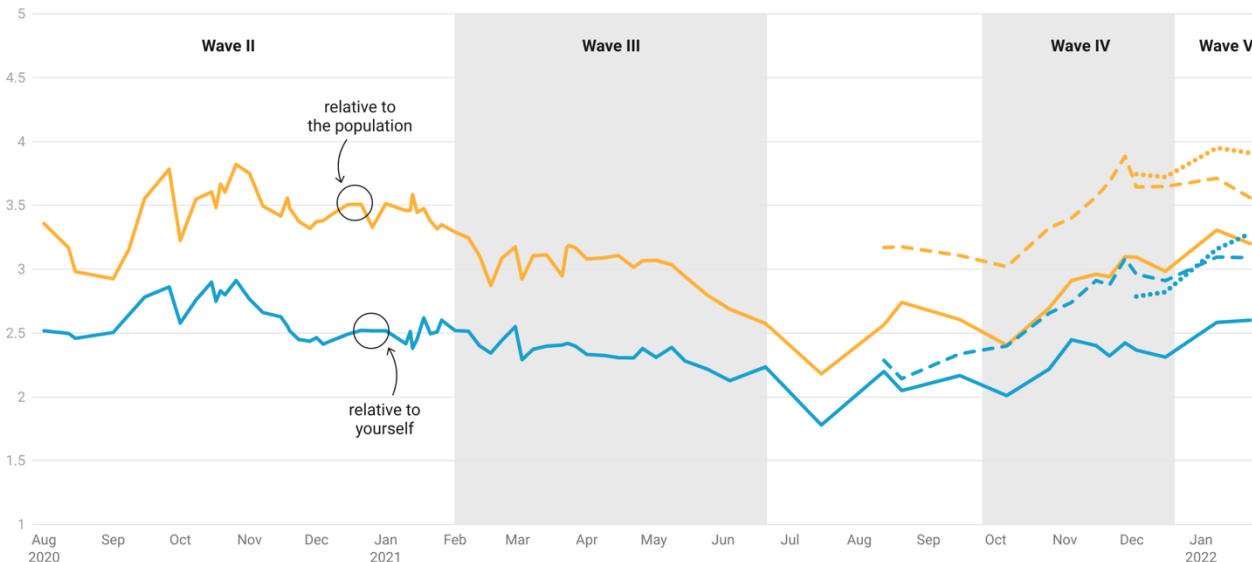
Evolution of risk perception to have severe symptoms of COVID-19
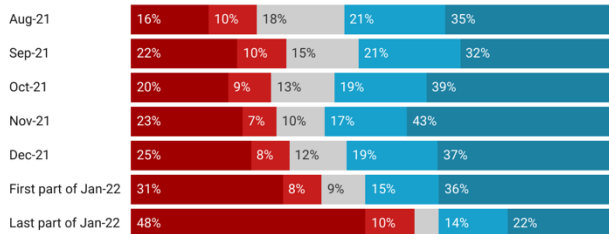
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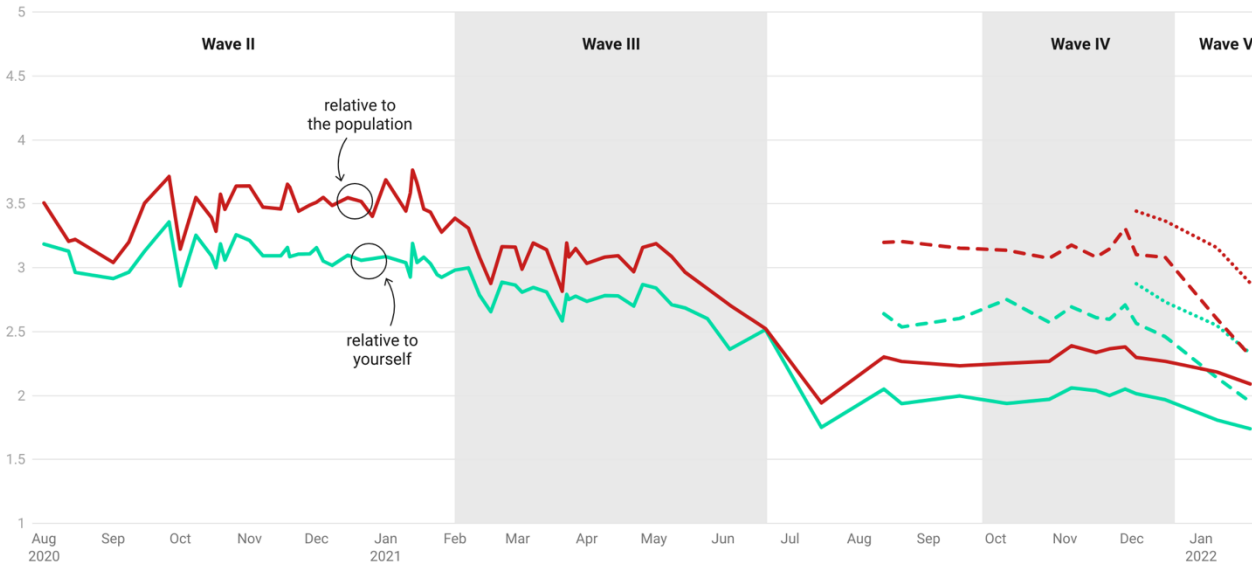
Figure 3
Evolution in support for mandatory vaccination and 1G policies as a function of vaccination status
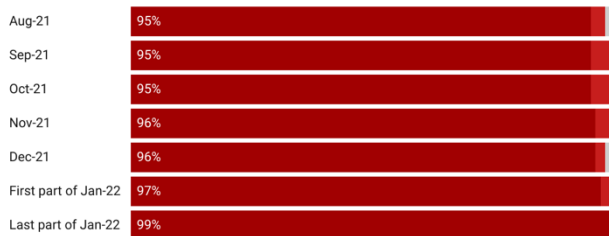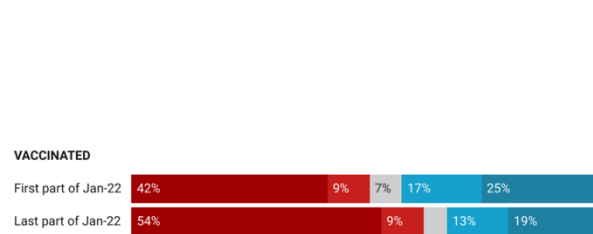
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Question 2: What psychological advantages and disadvantages are associated with different policy choices and which policy option encourages vaccination?

To better understand why only vaccinated individuals perceiving high infection risks favor stricter policy options and anticipate higher well-being, while unvaccinated and partially vaccinated people prefer the abolition of the CST, we take a closer look et the expected effects of different policy choices on several crucial psychological aspects.

- Autonomy, social connectedness, and worry: Well-being depends on the extent to which citizens experience choice and freedom in their daily lives (autonomy), feel a good relationship with other individuals and groups (social connectedness), and do not have to worry about their own health and that of loved ones (worry). Unvaccinated, partially vaccinated, and fully vaccinated individuals with low risk perception anticipate that abolishing the CST will have the most beneficial effect on their autonomy (Figure 4a), be an important step toward living without restrictions (Figure 4b), involve the least amount of tension (Figure 4c), and strengthen cohesion among groups (Figure 4d). They also expect to be less concerned about their health if the CST is abolished, whereas they - especially unvaccinated individuals - expect

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to have particular concerns if vaccination becomes mandatory (figure 4e). The pattern of results for vaccinated individuals with high risk perception shows opposite trends: they see compulsory vaccination as a first step toward a life free of constraints, expect compulsory vaccination to contribute to their autonomy and social cohesion, and that it will reduce their health concerns. Abolishing the CST today, on the other hand, would increase their concerns.

- <u>Confidence in policy</u>: Vaccinated individuals perceiving high risks would lose confidence in the policy (Figure 4f) if the CST is abolished and found the choice of stricter policies both clearer (Figure 4g) and fairer (Figure 4h). All other groups would just lose their confidence if the government maintains the CST policy or adopts stricter policies. They find the abolition of the CST to be the clearest and most obvious policy choice. Such a stricter policy would reinforce the idea among them that vaccination policy serves the pharmaceutical industry (Figure 3i), an idea that is even more prevalent among the unvaccinated group.

Conclusion: These results highlight the polarization of our society, in which the current situation and policy options are perceived very differently by various groups. Vaccinated individuals with high risk perception see benefits in terms of autonomy, relationships and health concerns if a stricter policies is implemented. Presumably, health concerns in this group have a stronger impact on their well-being. Note that other factors, such as autonomy and relational connections, play a stronger role among the other groups, who consider the time has come for the abolition of the CST. Once again, policymakers face an extremely difficult choice: whatever the decision, trust in politics will deteriorate in some groups.

Figure4 a. Estimated effect on autonomy of various policy choices as a function of risk perception and vaccination status.
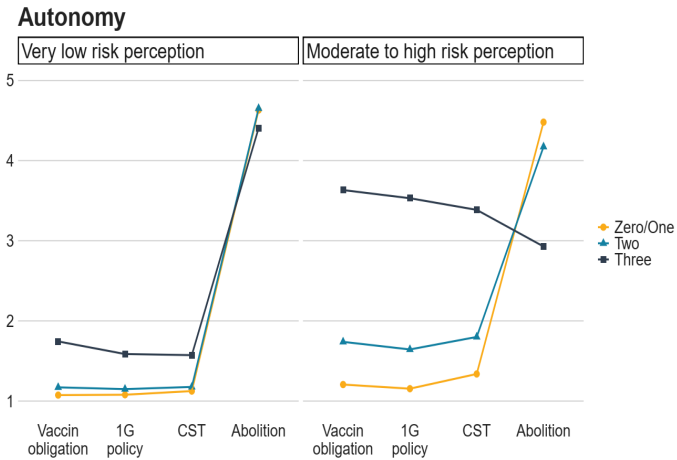

Autonomy

Figure4 b. Estimated effect on perceived freedom after introduction of various policy choices as a function of risk perception and vaccination status.
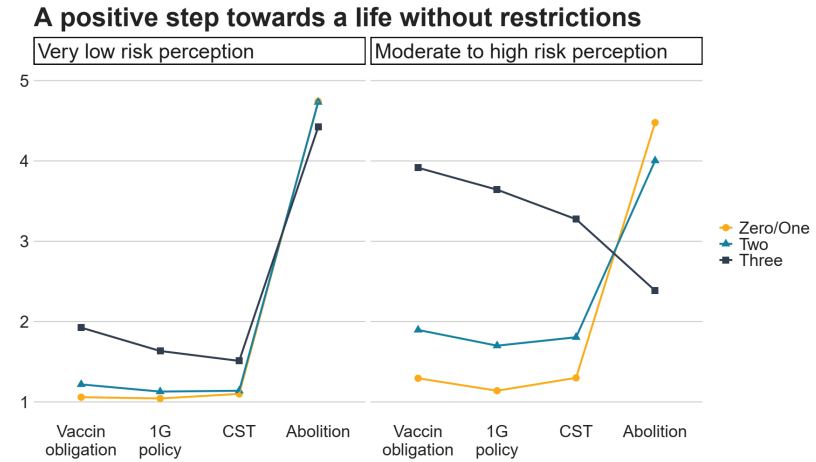

A positive step towards a life without restrictions

Figure4 c. Estimated effect on tensions and conflict of various policy choices as a function of risk perception and vaccination status.

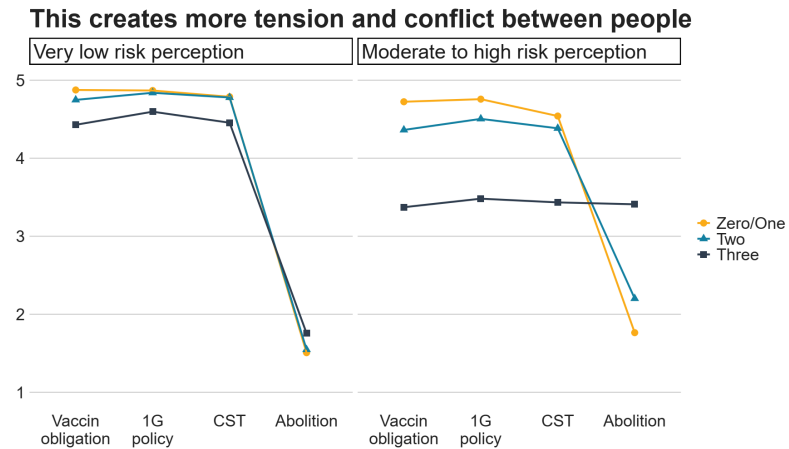**This creates more tension and conflict between people**

Figure4 d. Estimated impact on social cohesion of various policy choices as a function of risk perception and vaccination status.

Long−term trigger for more connection between people

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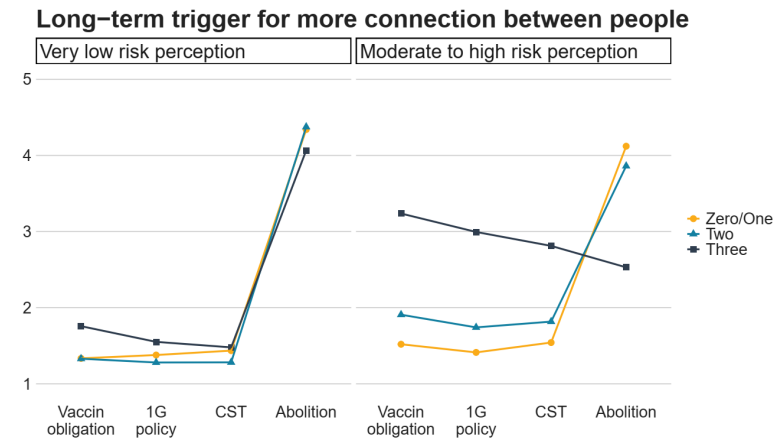*Figure 4e.* Estimated effect on health concerns of various policy choices as a function of risk perception and vaccination status.

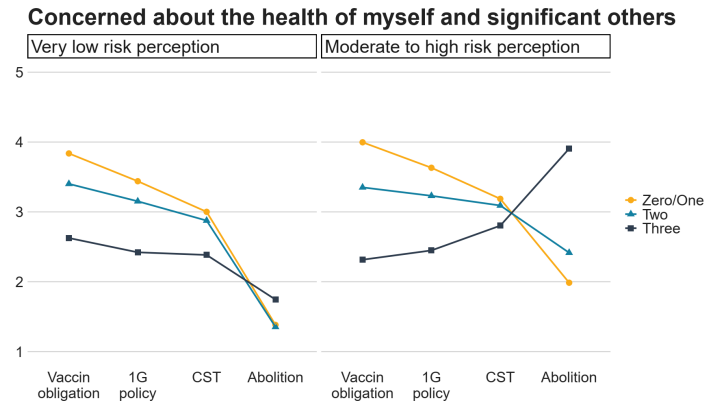**Concerned about the health of myself and significant others**

Figure 4f. Estimated effect on trust in government of various policy choices as a function of risk perception and vaccination status.

Losing faith in good intention of the government

Figure 4g. Estimated impact on clarity of various policy choices as a function of risk perception and vaccination status.

This will provide clarity
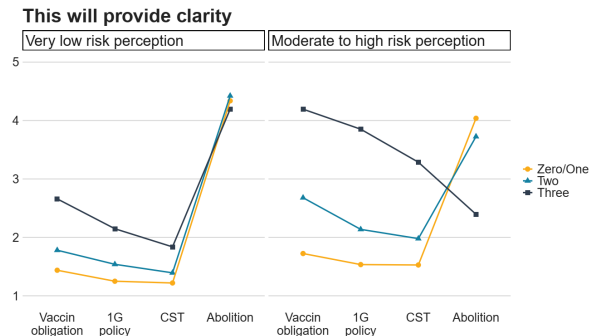

Figure4 h. Estimated effect on fairness of various policy choices as a function of risk perception and vaccination status.

Government's policies as open and honest

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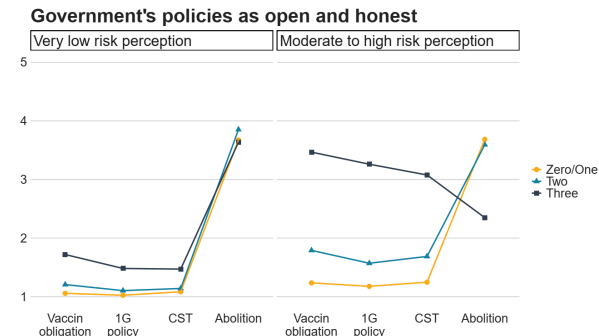
Figure4 i. Estimated effect on private company image of various policy choices as a function of risk perception and vaccination status.

Vaccination campaign's goal is to make private companies richer and more powerful
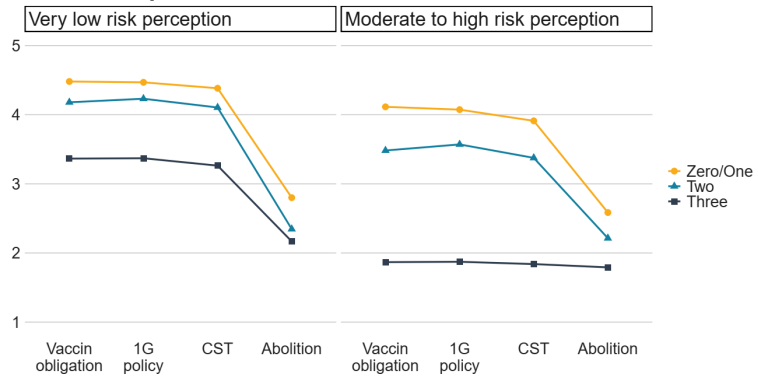
Question 3: What are the differences between a 1G policy and mandatory vaccination, and do some of the differences encourage vaccination?

- <u>Vaccine pass or mandatory vaccination</u>: A more detailed analysis of the results for a vaccine pass and mandatory vaccination policy indicates that there are psychologically meaningful but statically relatively small differences between the two options, at least among the group of vaccinated people with high risk awareness. In the case of mandatory vaccination, compared to a 1G policy, this group (a) expects better well-being, (b) sees mandatory vaccination as a more crucial step toward a life free of constraints, (c) anticipates greater social cohesion in the long-term, and (d) expects to worry less about their health concerns and finds this policy (e) both fairer and clearer. All groups indicated that mandatory vaccination has the advantage of being clearer than the vaccine pass.

- <u>Vaccination Intention:</u> The question of which policy option would encourage people to get vaccinated is also rated very differently (Figure 4). In general, the likelihood of doing so is estimated to be low, except by vaccinated people with moderate to high risk perception who assume that stricter policies will encourage vaccination. Strikingly, unvaccinated and partially vaccinated people have a greater willingness to be vaccinated if the CST is abolished. In this respect, they experience more freedom to choose whether or not getting vaccinated, whereas the CST, a vaccine pass or compulsory vaccination pushes or even forces them to do so.

Conclusion: Compulsory vaccination appears to be more widely supported than a vaccine pass among vaccinated people with a high risk perception. The differences are small and subtle but psychologically meaningful, with long-term benefits rated higher (i.e., increased well-being, social cohesion, fewer worries, fewer constraints). As risk-aware vaccinated people see benefits from stricter policies to achieve better vaccination coverage, unvaccinated and partially vaccinated people see it quite differently. Neither mandatory vaccination nor a vaccine pass, but rather abolishing the CST would motivate them to get vaccinated. Abolishing the CST presumably provides the physical and psychological space needed for them to come to their own decision of getting vaccinated.

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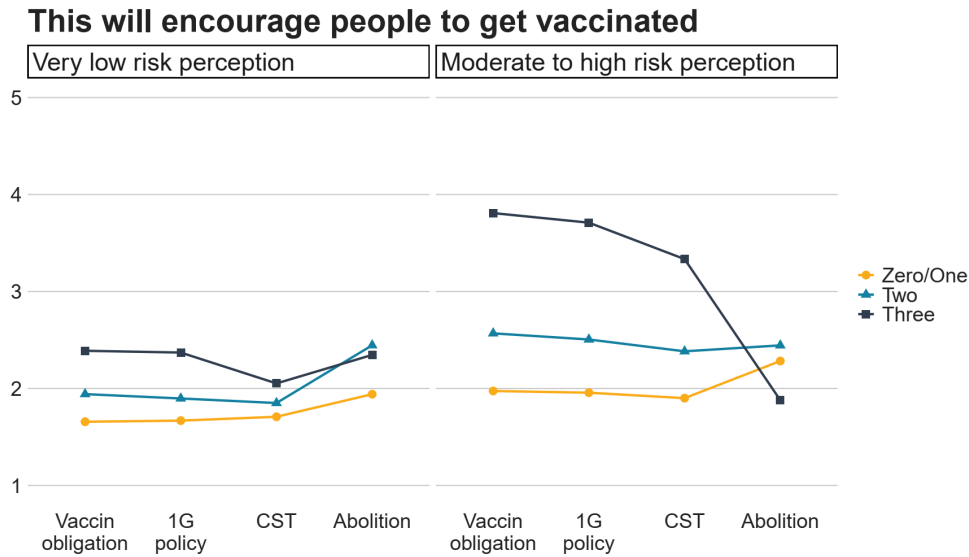Report 40: CST, mandatory vaccination, 1G policy, CST or stop everything?

Figure 5.

Estimated effect on vaccine readiness of various policy choices as a function of risk perception and vaccination status.

This will encourage people to get vaccinated

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Question 4: What factors prevent unvaccinated people from getting vaccinated? Are they related to attitudes toward mandatory vaccination?

Context study

Unvaccinated individuals were asked why they would still be willing to be vaccinated and what prevent them from doing so. Various motivational aspects were questioned in this regard:

Motivation

- **Voluntary or autonomous motivation:** indicates the extent to which a person is fully convinced of the added value and necessity of vaccination, for example, because it offers protection for him/herself, for his/her loved ones, or for the population.
- **'Compulsory' motivation**: indicates the extent to which one feels obligated to get vaccinated, for example, because others want them to do so or to avoid criticism.
- **Stigmatization:** indicates the extent to which people feel that Covid infection and severe disease are associated with a negative, stigmatizing image that they wish to avoid.

Obstacles

- **Distrust** expresses the degree to which people distrust the effectiveness of the vaccine or the person recommending the vaccination.
- **Difficulty (effort)** indicates how much effort or difficulty it takes to get vaccinated.
- **Resistance (opposition)** expresses the degree of opposition to the authorities, who are seen as a source of interference with individual freedom. This distrust is based on the idea that the measures they take are excessive.
- **Regret** reflects the degree to which one would regret the decision not to be vaccinated if found to be suffering from side effects.
- **External pressure** reflects the degree to which one experiences pressure (e.g., criticism, condemnation, prohibition) exerted from the environment not to be vaccinated.

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Unvaccinated people are a heterogeneous group: the obstacles to getting vaccinated can be very diverse. To get a more complete picture of the various reasons why unvaccinated people do not get vaccinated today, further analyses were conducted. The average results are compared to a large sample of unvaccinated individuals collected in December 2020 (see report18). At that time, the vaccination campaign had not yet started. Figure 6 shows that there are strong mean differences. Unvaccinated persons today score lower on voluntary motivation, experience more pressure to be vaccinated, report more distrust, and engage in more defiant resistance to the recommendation to get vaccinated. The unvaccinated do not feel that getting vaccinated requires much effort. The stigmatization associated with covid infection or severe disease plays only a minimal role in their decision to be vaccinated. Most also state that they experience little pressure from their environment not to be vaccinated. To a greater extent, the anticipation of regret about not being vaccinated, if side effects should occur, is an important barrier to vaccination. This constitutes a strong obstacle to vaccination.

The prevailing motives and barriers depend on the target group interviewed. This is necessarily selective, with for example less well-informed people participating less in the survey (see in appendix for methodological reflections). Gender shows a rather systematic effect: women report less voluntary motivation, more distrust and more regret than men. Higher educated individuals also score slightly higher on voluntary motivation, slightly lower on resistance and experience vaccination less as an effort compared to individuals with lower levels of education.

Conclusion: Unvaccinated individuals in 2022 report less voluntary motivation and more obstacles than unvaccinated individuals in 2020, before the the vaccination campaign begins. Unvaccinated persons are a heterogeneous group underpinned by a different set of reasons preventing vaccination. Therefore, a case-by-case approach is needed if the goal is to motivate these people to be vaccinated.

Figure 6

Average occurrence of various types of (lack of) motivation in December 2020 and January 2022

Types of motivation to get vaccinated

Dec 20   Jan 22
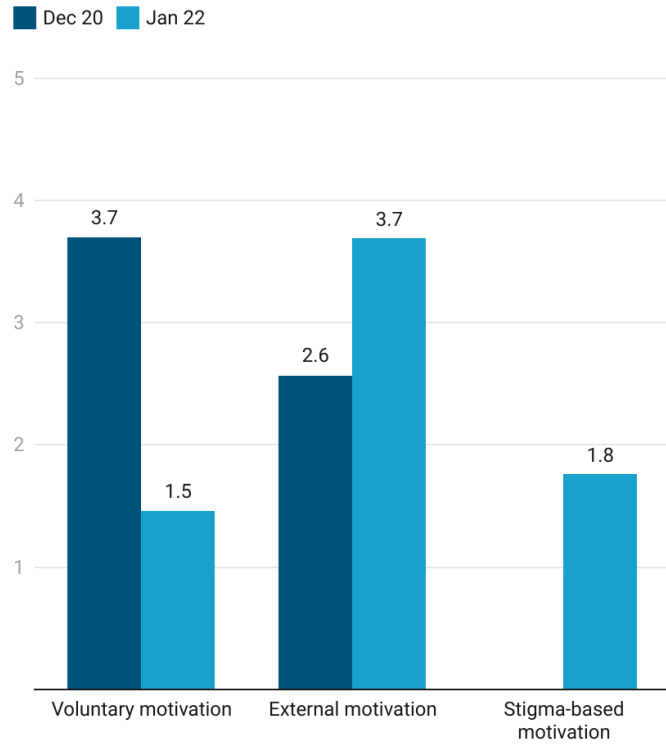
Types of amotivation to get vaccinated

Dec 20   Jan 22
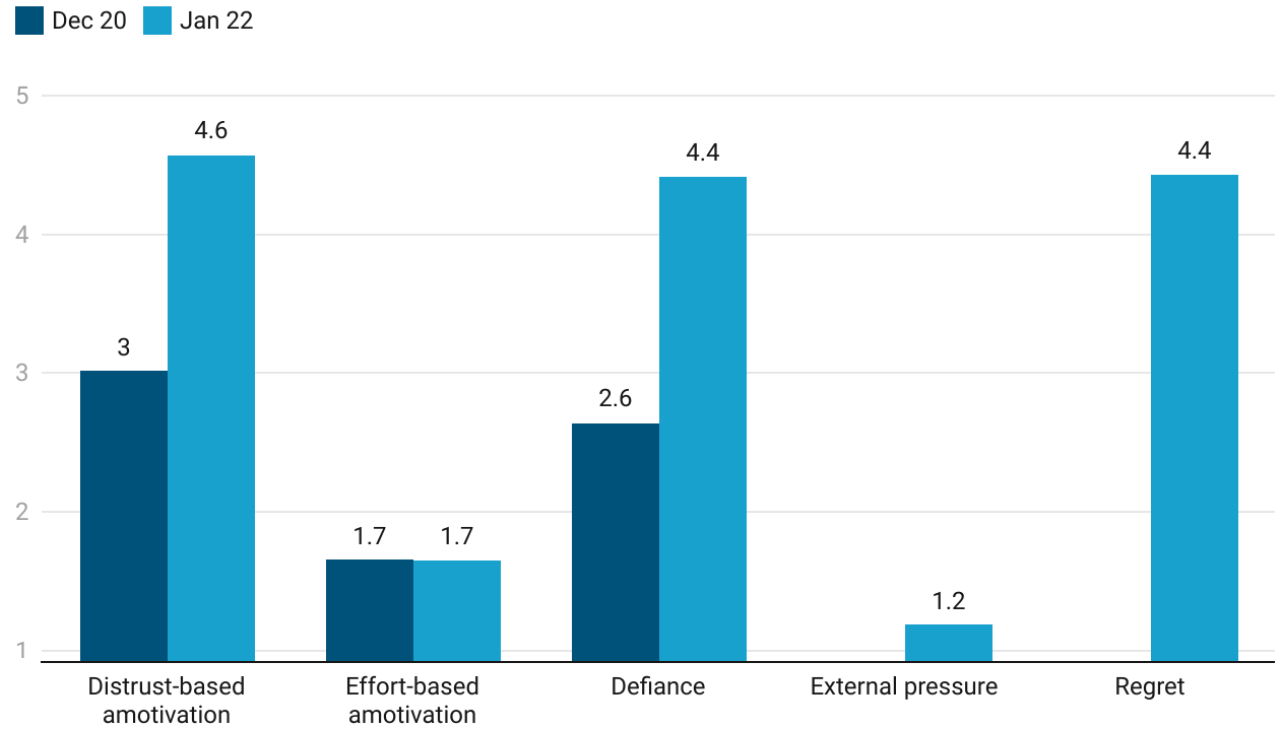
Question 5: What is a potentially motivating and relational connectedness alternative?

Unvaccinated individuals feel threatened in their autonomy and feel excluded from other groups (see Report 39). Thus, important aspects of their well-being are under pressure. At the same time, they report less risk awareness on average (Figure 2) and are less likely to be vaccinated if they have risk perception compared to vaccinated individuals. They are also strongly opposed to a 1G policy or mandatory vaccination, further compromising their autonomy and interpersonal relationships and makes them more likely to stick to their guns. At the same time, there is concern among vaccinated about how the situation will evolve if a new threatening variant puts renewed pressure on the health care system and delays non-covid care. In this context, the question arises as to what alternative can be both motivating and binding? We hereby make a proposal.

- <u>What:</u> To invite every unvaccinated person to a mandatory meeting with a health professional; previous surveys (see Report 31) have shown that unvaccinated persons would like to have a face-to-face meeting with a health professional (55%) or their general practitioner (53%) and that they would like to have specific answers to their concerns and questions (58%).

- <u>Objective:</u> To support the unvaccinated in making an **informed decision**. To achieve this goal, it is crucial that health professionals pursue the following objectives:

Desired method	Undesirable method
Connecting = understanding obstacles from a curious grounded attitude	Culpabilizing and excluding from an judgmental attitude
Inform = explaining risks and effects of vaccination	Seducing, coercing
Assist = answering questions and concerns	Convincing or converting

- <u>Signal?</u> By investing in such face-to-face conversations, society sends a powerful message of caring and connection to the unvaccinated. Unvaccinated people are also supported in their autonomy, but at the same time the necessary guidance is given so that they make an informed decision. This should strengthen the trust towards vaccinated people that the government also cares about them and does not treat the decision not to be vaccinated lightly.

- <u>Conversation style?</u> To achieve this goal, an autonomy-supportive conversational style is crucial. Supporting an unvaccinated person's autonomy is not about manipulating the person to achieve a goal that the health care provider prioritizes (i.e., vaccination), but about supporting the decision-making process whereby unvaccinated people get a good idea of (a) their risks and (b) the pros and cons of vaccination (see Vansteenkiste et al., 2012). To this end, a process-oriented rather than an outcome-oriented and instrumental approach. Specifically, the success of this policy choice should not be determined based on the number of people who still get vaccinated. These conversations are valuable in themselves because they aim

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to foster mutual understanding and clarity at a time when society is highly polarized. If desired, the unvaccinated person can come for a second interview if a new variant should emerge, which can lead to a revision of the decision. A health worker can request the mandate for such a second interview so that the rhythm of the unvaccinated person is followed.

- Pitfalls? This policy choice needs to be further refined, as several obstacles can occur.
  - Framework: If this policy choice is made, it is crucial that the purpose of these conversations be well communicated. The obligation to talk may itself fuel conspiracy thinking.
  - Training: Because health workers are in danger of filling out these conversations in a more results-oriented way, they need to be properly trained in our proposed approach. Otherwise, the conversation risks becoming bogged down in conflict, which drives people further apart.

In general, we advocate a further study of the conditions under which this policy choice has a chance of success. For future investigations, various motivational and psychological aspects in this regard can be studied in more depth.

Conclusion: In today's polarized society, a powerful signal of bonding and connection is necessary. Therefore, it is useful to invest in face-to-face conversations between unvaccinated people and a trusted health professional (e.g., general practioners, pharmacists, social workers). These conversations should not be instrumentalized to subtly increase vaccination coverage, but serve an end in itself: engaging with unvaccinated people about their obstacles to vaccination and properly informing them about their risks and the effects of vaccination. The ultimate goal is to enable unvaccinated people to make their own informed decision, with the help of a caring health professional supporting their autonomy.

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Appendix: Methodological notes on the Motivation Barometer.

Within the Motivation Barometer, waves of measurements are regularly set out in function of the evolution of the pandemic. Even though for each wave there are many thousands of respondents from Dutch-speaking and French-speaking Belgium, the results are not representative for the entire population. The main reason for this is that participation is based on the respondent's own decision. As a result, *self-selection* occurs. This means that certain answering patterns may occur relatively more often because people with certain characteristics participate in the survey. This self-selection can be driven by situational, psychological or sociodemographic elements. For example, respondents might be people with a computer, tablet or smartphone and internet connection, with an interest in (aspects of) COVID-19 policy, with motivation to complete the list, with a particular conviction for or against certain measures, with an understanding of the questions posed, etc. Such self-selection also occurs when representative samples are sampled through a panel study as psychological or situational factors can also influence the intake of participants. This self-selection can, on the one hand, be corrected to some extent through statistical methods, but on the other hand it also imposes limitations on what we can conclude from this survey study. We discuss both aspects here.

Correction capabilities

Dissemination
To minimize self-selection, it is important that people from all walks of life come in contact with and respond to the invitation to participate. For this reason, invitations are distributed through as many channels as possible, including news websites, a wide range of newspapers, and Internet channels such as Facebook and Twitter. Unfortunately, people who do not follow "mainstream" news channels and/or do not follow social media will not be reached. Because the same dissemination channels are used throughout the study, the sociodemographic composition remains broadly stable across the waves of measurement.

Weighting
The non-representative character of the respondents is expressed in their sociodemographic characteristics such as age, gender, educational level, and country region. Since the sociodemographic composition of the entire Belgian population is well known (stabel.fgov.be), the answers of certain types of respondents can be given more or less weight in the analyses in order to approach the true sociodemographic characteristics of the population. Such weighting procedures are used within the Motivation Barometer. However, such weighting does not correct for potentially relevant variables whose distribution is less well known across the different segments of the population (e.g., percentage of parents with young, school-age children, vaccination status of respondents, etc.) or for the fact that psychological characteristics drive self-selection (e.g., motivation or annoyance of participants).

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Conclusions

Because corrections for self-selection bias are limited, it is important to properly delineate the types of conclusions that can be drawn with greater or lesser certainty.

Relatively certain conclusions

Statements about the structural relationships between measured psychological variables (e.g., communication style, behavior, motivation, vaccination, well-being, and trust in policy) or between sociodemographic and psychological variables (e.g., age and motivation) are less influenced by the unrepresentative nature of the data. These include:

- Testing the internal consistency (i.e., reliability) and validity (e.g., internal and construct validity) of constructs;
- Cross-sectional (dynamic) relationships among variables;
- Longitudinal correlations in the same people;
- Relative differences between measured outcomes in experimental designs;

Examining these structural relationships between different variables allows us to test hypotheses derived from highly validated theoretical frameworks. On this basis, we can develop a meaningful *psychological narrative* (e.g., about the role of risk perception on motivation, about change in support for certain measures, etc.) that provides interpretation and guidance for the public and policy and that, because of its empirical basis, transcends anecdotal impressions.

Conclusions requiring caution

The unrepresentative nature of the samples makes it difficult to make reliable statements about

- The (absolute) degree to which certain characteristics are present in the population as a whole (e.g., percentage of support for mandatory vaccination; the percentage of participants who are positive about coronapas (CST), etc.).
- The relative degree to which certain characteristics (e.g., trust in politics, well-being) are present among subpopulations (e.g., vaccinated vs. unvaccinated; younger vs. older participants).

In this way, certain figures may over- or underestimate what is happening in reality. We therefore exercise caution when making such statements:

- Draw attention to *evolutions* over time in the characteristics measured (e.g., decrease/increase in motivation) rather than the percentage occurrence of these characteristics per se.
- *Present* the results as a function of relevant characteristics not included in the weighting (e.g., vaccination status) *separately*. This will focus on the difference and the effect size of this difference rather than the differential occurrence of certain characteristics.
- In our communication of the results in the media, highlight the psychological interpretation as much as possible (e.g., a decrease in motivation is attributable to a decrease in risk awareness).

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