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Perspective

Expectations and disappointments relative to COVID-19 passes: results from a voluntary mixed-methods study in French-speaking Belgium

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ABSTRACT

Objectives: Belgium enacted a coronavirus disease 2019 (COVID-19) pass – the ‘COVID Safe Ticket’ (CST) – in October 2021. This study aimed to understand the expectations and reasons given by those supporting this policy measure.

Methods: This mixed methods study was based on a voluntary online survey among 9444 French-speaking residents in Belgium.

Results: Most respondents were not very supportive of the CST, with only 617 respondents (7%) being pro-CST. Compared with other respondents, the pro-CST sample comprised more males, older people, people scared of COVID-19, people who had confidence in the COVID-19 vaccines, and highly educated people. A qualitative analysis was undertaken to identify the reasons why respondents supported the CST. Two lines of argument were related to personal comfort (individual protection and means of ‘recovering freedom’), and two other lines were related to collective protection (controlling the pandemic and incentivizing vaccination). Pro-CST respondents also indicated some limitations of the CST.

Conclusions: The expectations regarding the CST were high, diverse and not entirely rational. Some contradictions and frustration emerged from the respondents’ comments. The CST may have exacerbated the social divide in society. The high expectations risk leading to comparably high levels of disappointment, resulting in potential distrust towards future public health interventions.

Introduction

Following the example of France [1], Belgium enacted a coronavirus disease 2019 (COVID-19) pass – the ‘COVID Safe Ticket’ (CST) – in October 2021. Proof of complete vaccination, recovery from COVID-19 (<6 months) or a recent (<72 h) polymerase chain reaction (PCR) test via the CST enabled access to several public and private facilities (e.g. restaurants, gyms, etc.). The CST was presented by the public health authorities as a means of reaching various objectives: re-opening the economy while protecting people’s health, and increasing vaccination coverage. However, such passes may have unintended negative effects on society [2]. In Belgium, the CST received mixed reviews from the public and, following the sudden improvement in the epidemiological situation, its implementation was suspended on 7 March 2022. At that

time, there were fairly important differences in vaccination status between the Flemish (Dutch-speaking) region (84% of people aged ≥18 years were vaccinated) and the two (mostly) French-speaking regions (66% and 47% of people aged ≥18 years in Wallonia and Brussels were vaccinated, respectively) [3]. Based on a voluntary online survey among French-speaking residents in Belgium in December 2021, this study aims to understand the expectations and reasons advanced by those supportive of the CST.

Methods

This mixed methods study was a secondary analysis of a voluntary online survey conducted among French-speaking residents in Belgium in December 2021 (i.e. approximately 2 months after the CST was imple-

Abbreviations: COVID-19, Coronavirus disease 2019; CST, COVID Safe Ticket; TMT, Terror Management Theory; PCR, Polymerase Chain Reaction.

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mented). The survey was advertised through social media alone. Details regarding the survey methodology and the full sample of respondents are provided as online supplementary material. Of the 9444 individuals who completed the questionnaire, this study focused on those who were supportive of the CST ('pro-CST' individuals). This was assessed through the construction of an index based on the answers to seven closed-end questions associated with a five-level Likert scale, aimed at assessing the level of agreement towards various ideas that were either in favour of or against the CST. For each of the seven questions, a score ranging from 0 (fully against the CST) to 4 (fully in favour of the CST) was attributed. Respondents who reached at least the average score of 3 were considered as 'pro-CST' individuals, while those who had an average score <1 were considered as 'anti-CST' individuals. The rest were considered as 'neutral'.

At the end of the survey, all participants were invited to answer open-ended questions, one of which was specific to the CST: 'Overall, how do you feel about the CST?' A total of 376 pro-CST participants replied to the open question on the CST, among which 110 indicated one or more reasons for using the CST. These were included in the study population subject to a qualitative analysis. The relevant responses were coded through two rounds. The first round was 'in vivo' (i.e. descriptive and very close to the respondents' verbatim comments) (available upon request, in French). The second round was necessary to group various codes and to deepen the interpretation. Some illustrative comments have been translated by the authors to reflect the respondents' perceptions and arguments.

Findings

The identification of pro-CST individuals through averaging the scores of the seven questions related to the CST is supported by strong internal consistency (Cronbach's alpha 0.94). Out of 9444 respondents, 617 (6.5%) were identified as pro-CST and 7296 (77.3%) were anti-CST. The pro-CST study population mainly comprised women (55%) and people with a high level of education (46% Master's degree, 26% Bachelor's degree, 13% PhD). Forty-four percent of the pro-CST group were middle-aged (age 45–64 years), 28% were aged 30–44 years, 20% were aged ≥65 years, and 8% were aged 18–29 years. All pro-CST participants were fully vaccinated. Table 1 shows the sociodemographic characteristics of the study population. Even if this sample is not representative of the French-speaking population of Belgium, Table 1 shows that, in comparison with the respondents who were neutral towards or opposed to the CST, the pro-CST sample comprised more males, older people, people scared of COVID-19, people with confidence in the COVID-19 vaccines, and highly educated people. Pearson χ^2 tests were performed to verify the homogeneity of the distribution between the three groups; homogeneity was not confirmed for each characteristic ($P < 0.001$), meaning that the sociodemographic characteristics of the three groups varied significantly.

Responses to each of the seven questions about the CST by the pro-CST population are reported in Table 2 (for the full sample, please refer to the online supplementary material).

A large majority of the pro-CST population agreed that the CST was an effective tool in the fight against infection and the pandemic (83.6%), and should be extended to all places and events considered as a source of contamination (97.1%). Most of them also agreed that those who had refused vaccination should pay for their PCR tests if they wished to participate in an activity that required the CST (96.1%). Pro-CST individuals disagreed with the idea that the CST does not respect the right to privacy (98.0%), and that it could be a danger to the rule of law (94.3%). However, responses were more nuanced regarding the question of whether the CST was associated with the polarization of society (68.0% supported that claim), and whether it was a disguised attempt to make vaccination mandatory (53.5% supported that claim).

The qualitative analysis was conducted on the 110 pro-CST respondents who gave one or more reasons for adhering to the CST as a re-

Table 1
Sociodemographic characteristics of the pro-COVID Safe Ticket (CST) sample compared with other respondents^a

	Anti-CST <i>n</i> = 7296 (77.3%)	Neutral <i>n</i> = 1529 (16.2%)	Pro-CST <i>n</i> = 617 (6.5%)
Gender	$\chi^2=23.6$; <i>dl</i> =4; $P < 0.001$		
Female	63.7%	59.5%	55.4%
Male	36.0%	40.2%	44.2%
Other	0.3%	0.3%	0.3%
Age group (years)	$\chi^2=232.5$; <i>dl</i> =6; $P < 0.001$		
18–30	7.7%	12.9%	6.6%
30–44	40.2%	37.1%	26.4%
45–64	45.2%	38.8%	45.9%
>65	6.9%	11.1%	21.1%
Level of fear of COVID-19	$\chi^2=131.0$; <i>dl</i> =4; $P < 0.001$		
Low	90.7%	65.1%	47.6%
Moderate	7.6%	25.0%	34.0%
High	1.7%	9.8%	18.3%
Level of confidence in vaccines	$\chi^2=5948.6$; <i>dl</i> =4; $P < 0.001$		
Low	90.6%	23.6%	1.3%
Moderate	7.7%	29.6%	10.5%
High	1.7%	46.8%	88.2%
Vaccination status	$\chi^2=4579.3$; <i>dl</i> =6; $P < 0.001$		
Fully vaccinated + booster	1.7%	25.5%	49.6%
Fully vaccinated	15.8%	59.1%	50.4%
Partially vaccinated	1.5%	1.3%	0.0%
Not vaccinated	81.0%	14.1%	0.0%
Education level	$\chi^2=137.9$; <i>dl</i> =7; $P < 0.001$		
Primary education	0.8%	0.6%	0.6%
Secondary education	16.5%	13.2%	11.8%
Bachelor's or equivalent level	34.9%	30.2%	26.4%
Master's or equivalent level and more	40.4%	50.1%	56.2%
No reply	5.2%	2.4%	1.9%

COVID-19, coronavirus disease 2019.

^a Two respondents had missing data and were excluded from this analysis.

sponse to the open-ended question. Following the second round of coding, four major reasons why respondents supported the CST were identified; these are analysed in more detail below. Two lines of argument were related to personal comfort (individual protection conferred by the CST, and CST as a means of 'recovering freedom') and two other lines were related to collective protection (CST as a means of controlling the pandemic, and of incentivizing vaccination). Furthermore, the responses to the open-ended question also enabled pro-CST respondents to comment on the perceived limits of the CST, and ways of improving this.

First, a little more than half of the qualitative study respondents (57/110) declared that they supported the CST for reasons of personal comfort; and 37/110 viewed the CST as a means of protecting themselves (especially from unvaccinated people), limiting risky contacts (by knowing who is potentially infected), and feeling safe. Some respondents highlighted the perceived risk represented by unvaccinated people:

'It's also a means of protecting oneself.'

'The best way of limiting risky contacts.'

'It is a means of having a certain probability that the person is not contagious at the time of CST.'

'It is a very good idea. I feel secure thanks to this.'

'Excellent initiative. It protects from the unvaccinated.'

Other arguments, made by 20/110 respondents, related to the CST as a means of recovering one's freedom. They mirrored the various restrictions imposed by the Government to contain the pandemic, and expressed themselves in relation to social life, leisure, travel and being able to resume working. Some respondents presented the CST as a nec-

Table 2
Frequency of responses of the ‘pro-COVID Safe Ticket (CST)’ sample to the seven questions about the CST.

Questions related to ‘attitude towards CST’	Question induces support or opposition to the CST	Strongly disagree	Somewhat disagree	Neither agree nor disagree	Somewhat agree	Strongly agree	Don’t know
The CST is an effective tool for fighting infection and the pandemic	Support	0.2%	2.4%	11.2%	50.2%	33.4%	2.6%
The CST is a bad idea because it does not respect the right to privacy	Opposition	87.5%	10.5%	1.0%	0.2%	0.2%	0.6%
The CST is a danger to the rule of law	Opposition	77.8%	16.5%	2.7%	0%	0.2%	2.8%
The CST is a tool that should be extended to all places and events considered as a source of contamination	Support	0.3%	0%	1.0%	22.7%	74.4%	1.3%
The CST is a tool that increases discrimination between vaccinated and unvaccinated individuals, it will further polarize society	Opposition	46.8%	21.2%	15.9%	11.5%	1.0%	3.6%
It is right that those who refused to be vaccinated should pay for their PCR tests to participate in an activity requiring a CST	Support	0.3%	0.8%	2.1%	14.9%	81.2%	0.6%
The CST is a disguised vaccination obligation	Opposition	32.6%	20.9%	18.3%	23.2%	3.6%	1.5%

COVID-19, coronavirus disease 2019; PCR, polymerase chain reaction.

essary step for reopening the economy. Some respondents suggested that there should be a differentiated approach between vaccinated and unvaccinated people, with a perception of reward/punishment related to vaccination status:

‘A means of enabling to resume many activities in a secure way, notably cultural activities, thus positive.’

‘It enables to resume going to the cinema, theatre without fearing to catch COVID.’

‘... I can continue going out, which is fundamental for me; and also travelling, with my children.’

‘It is also a means of... enabling everyone to practice one’s job.’

‘If this allows us to get out of confinement; very fine.’

‘I can’t figure out how to resume a bit of social life and economic activity without the CST.’

‘It is normal that those who are vaccinated can assert it and can practice a number of activities knowing the risk of contamination is weak.’

A third batch of arguments, made by 24/110 respondents, presented the CST as an effective tool to suppress the pandemic through limiting contamination in public spaces, in large gatherings, as well as in restaurants, bars, cultural and leisure clubs, and more generally as a way of protecting others:

‘A way of limiting propagation in public spaces. Very favourable to CST.’

‘It is a necessary evil, for large events.’

‘It is also a means ... of protecting others from contamination.’

‘Good tool, which brings together the vaccinated and makes them even more united to end the crisis.’

‘It is important to be able to see who is potentially contagious so as to protect others.’

Finally, nearly one-quarter of the pro-CST respondents (25/110) viewed the CST as an incentive for vaccination, yet without developing the argument in greater depth. This incentive was viewed both as a ‘carrot’ (rewarding vaccinated people) or as a ‘stick’ (raising awareness among unvaccinated people). Many viewed the CST as a method to make vaccination mandatory:

‘It is also a good means of limiting risky contacts and to get those who decide not to get vaccinated to take their responsibilities.’

‘... allows the vaccine recipients to stop wearing the mask.’

‘Rewarding more the vaccinated.’

‘It is also a disguised way of making vaccination mandatory.’

As well as explaining their reasons for being in favour, some pro-CST respondents (25/110) suggested several limitations of the CST. Numerous arguments were raised. On one side, some viewed the CST as ‘too much’ because it remained a constraint, mostly for unvaccinated people but even for vaccinated people (notably those who are unfamiliar with digital devices). Some were uncomfortable with the violations of privacy it represents, and some people qualified it as discriminatory towards unvaccinated people:

‘Unfortunately, access to digital practices is not easy or even possible for everyone.’

‘It’s unfair, a bit discriminatory.’

In contrast, other respondents believed that the CST was ‘not enough’. They thought it was still not safe enough due to a lack of control or the possibility of obtaining false passes, or because tests could possibly be false-negative. Some respondents felt it should be complementary to other measures that needed to be maintained (i.e. physical distancing, ventilation):

‘If properly applied, it would be very useful and would reassure others ... we would be assured of a very low risk. Unfortunately, the controls are limited to barcode scans without any name check. The frauds are therefore legion and even worse, the fake CST are sold on the internet without any sanction.’

‘... good tool, [...] But not to be used alone, and certainly not to abandon the barrier gestures.’

Expectations were high, and the CST disappointed some respondents, notably due to the continuation of other restrictions at the same time, and the acknowledgement that vaccination did not prevent infection. Some respondents even referred to a lack of coherence of the Government’s response to the pandemic:

‘The CST of a vaccinated person is not a guarantee that he won’t transmit the virus.’

‘I was hoping it would do more to limit the spread of COVID.’

‘But the Government’s measures sometimes lack coherence.’

‘In the end, the CST was more a revelation of serious dysfunctions than anything else.’

Finally, 18/110 respondents proposed ways to improve the implementation of the CST. However, these were contradictory. While some respondents believed that the CST should be temporary and lifted as soon as possible, others wished to see it limited to vaccinated people alone. Some respondents wished to see the CST extended to other sectors, and others believed that it should not be applied in shops and work places. Some respondents thought that only vaccinated people should get the CST, and others thought that more restrictions should be imposed on unvaccinated people. Mandatory vaccination was also evoked by some of the participants:

‘Very good idea, and should be reinforced with mandatory vaccination.’

‘It wish it was requested everywhere.’

‘... but I am against its application in everyday life (work, shops)’

‘[...] it seems fundamental to me that the CST be maintained as briefly as possible.’

‘There should be much stronger restrictions on unvaccinated people.’

Discussion

This mixed methods study showed that most people in French-speaking Belgium were not very supportive of COVID-19 passes, with only 6.5% of survey respondents identified as ‘pro-CST’; however, there may have been selection bias in the respondents. The pro-CST population had fairly unanimous and strong opinions on some questions relative to the effectiveness of the CST, and the ‘rights’ of vaccinated people over unvaccinated people, but were more nuanced about the risk of increasing polarization of society and the fact that the CST might be viewed as a disguised way to make vaccination mandatory. This is consistent with other studies pointing to the risks and limitations of such restrictive tools [1,2].

This study showed that the expectations regarding COVID-19 passes were high and diverse among the pro-CST population. These went beyond the range of arguments relating to protecting one’s health and feeling secure, and included both personal (e.g. getting rid of restrictions, travelling, etc.) and collective (e.g. protecting others, contributing to controlling the pandemic, etc.) arguments. The qualitative part of this study enabled identification of the less ‘rational’ arguments, and some resentment emerged from the respondents’ comments. Some respondents expressed their frustration – particularly against unvaccinated people. Several respondents suggested that vaccinated people should be ‘rewarded’ (which might appear to be paradoxical, as getting a free, effective vaccine should logically be experienced as a reward *per se*) while unvaccinated people should be ‘punished’. This Manichean view of the good self and the bad others aligns fairly well with terror management theory (TMT). The original aim of TMT was to explain two challenging human experiences, namely the human propensity to have difficulty living with those who are different and the compelling need to maintain high self-esteem, to feel good about oneself, to be right [4]. As described by TMT, when humans face a deadly threat (e.g. virus, war, terrorism, etc.), it makes one’s mortality more salient and undermines one’s self-esteem, resulting in anxiety and mental distress. Knowing that COVID-19 has created stress and fear of death, TMT has been suggested to explain certain behaviours or attitudes [5]. One way of dealing with this terror is to strengthen the cultural view (of a fair or predicted world) and to contribute to it. Anyone who is different or does not fit into this cultural view will then be to ‘fight’ the non-normative people by various means. Different alternatives will be either dismissed, people will

work to assimilate different views to the cultural world view as missionaries did previously, or different views will be annihilated so that one’s own view would prevail [4]. As a perfect example, one could recall French President Macron’s statements about the irresponsible unvaccinated people he wanted to ‘piss off’, whom he no longer considered to be citizens. In sum, the French President declared unvaccinated people to be enemies of the nation [6]. The need for vaccinated people to be rewarded and unvaccinated people to be punished fits fairly well with this idea of rejection and annihilation of divergent and threatening thoughts and people, in favour of the dominant cultural view [4].

Beyond the arguments supporting the use of the CST that have been identified above, a few respondents also indicated that the CST enabled the authorities ‘to control the population’. However, it was not possible to infer from the comments whether this was experienced as a positively- (controlling the spread of the epidemic) or negatively- (manipulating the population) balanced type of control. Concerns regarding the protection of privacy and personal data have been evoked by respondents, as elsewhere [7]. A general feeling emerging from this analysis is that the COVID-19 response measures, including the CST, have exacerbated a social divide in society. Other authors have argued that restricting people’s access to public and private activities based on COVID-19 vaccination status may impinge on human rights and the Siracusa Principles on the Limitation and Derogation Provisions in the International Covenant on Civil and Political Rights, and promote stigma and social polarization [2,8]. Previous research showed that mortality salience made people more conservative and in need of strong leadership when faced with a deadly threat. For instance, political polls showed that President Bush Jr. gained nearly 40 points in the polls between 9th and 13th of September 2001, taking him from 50% to 88–90% in less than 5 days following the September 11 attacks [9]. More recently, during the COVID-19 pandemic, a study showed that people became more authoritarian and conservative as the number of COVID-19 cases increased in the USA [10]. The findings also showed that the concerns regarding the threat of COVID-19 were positively correlated overall with the level of right-wing authoritarianism and conservatism. Collectively, together with this literature, the qualitative findings of this study showed that the respondents experienced the CST as a tool allowing better control of the normative rules.

Another paradox lies in the fact that respondents seemed to consider that they were protected by the CST – thus, it was a good protecting tool – but, at the same time, that they were protected insufficiently, so others should be incentivized to get vaccinated. Indeed, many respondents indicated that the CST was an important tool to incentivize vaccine uptake, as documented in other countries [1,11]. Another secondary analysis from the present survey suggests that the CST could indeed have played a moderate role in incentivizing vaccination [12], as the vaccination rate increased from 75% in late September 2021, 15 days before introduction of the CST, to 80% on 7 March 2022 when the CST was suspended [13]. This paradox could result from the human need for control, and particularly from the interaction between internal and external loci of control. Perceived controllability was one of the factors that influenced intentions towards preventive behaviours during the COVID-19 restriction period, as were perceived risk and worries [14]. However, the locus of control should be considered as two-sided, with an internal locus of control which relates to the belief that any outcome is contingent upon one’s actions, and an external locus of control that relates to chance and others’ actions and decisions [15]. For instance, in Norwegian and German populations, the stress of COVID-19 was positively related to mental distress, and the internal locus of control acted as a buffer to mitigate this relationship by giving back control over the situation while mitigating distress [16]. On the other hand, the external locus of control increased the strength of the relationship between the stress of COVID-19 and mental distress by reducing the individual’s impact on the situation by making him/her more dependent on the decisions of others. This may help to understand the paradox mentioned above, where the decision to be vaccinated gave control to

vaccinated people over the stressful situation of COVID-19, but, at the same time, the feeling of being dependent on others who refuse to take the proposed solution led to a loss of control and a compelling need to encourage unvaccinated people to make the same choice as themselves.

Overall, respondents seemed to assume that the three categories of people concerned by the CST were somewhat equally protected from infection (and transmission), with a slight advantage for vaccinated people. That belief was hammered regularly by the Belgian politicians and media. However, the literature indicates the limited and waning effect of vaccination on the transmission of emerging SARS-CoV-2 variants [17–20]. Implementation of the CST did not prevent an important wave of infections in Belgium in January 2022 [3], linked to the Omicron variant. There is a risk that the high expectations of the population towards the CST will lead to equally high levels of disappointment, leading to a reduction in trust towards future public health interventions. Simply stated, when people evaluate whether the outcome of a decision is fair or not (i.e. justice evaluations), they expect a congruence between appropriate or proposed normative distributive rules (i.e. expectancies) and what they actually obtain (i.e. outcomes) [21]. When such justice evaluations lead individuals to feel under-rewarded, they are likely to present emotional reactions including disappointment, sadness, depression, anger and resentment [21]. Disappointment is experienced when the outcome is worse than expected, when individuals face unconfirmed expectancies, particularly in situations in which individuals do not feel responsible for the outcome [22]. Disappointment involves feelings of powerlessness, which could lead individuals to think that making any decision will not make any difference, leading them to avoid any future disappointment (i.e. risk and decision aversion), and could therefore lead to goal abandonment and inertia [22]. These emotional reactions could be harmful to the implementation of future public health policies [23,24].

Interestingly, the way that people typically handle feelings of disappointment may be related to some of the response paradoxes observed in this research. In order to cope with disappointment, individuals may either reduce expectancies or try harder to fulfil initial expectations as a way to close the gap between expectations and outcomes [22]. This may explain, for instance, why pro-CST respondents who declared high expectations regarding the COVID-19 pass in this research were, on one hand, relatively satisfied with its role in protecting one's health and feeling secure. In a way, they acknowledged that the outcomes met their expectations. However, on the other hand, pro-CST respondents expressed the need for vaccinated people to be 'rewarded' and unvaccinated people to be 'punished', as if the uncertainty of the outcome remained uppermost in their minds. Indeed, if the CST were effective in blocking infection and viral transmission, these people could simply ignore those who made a different choice at their own peril (i.e. punishment). Such ambivalence could also be related to the fact that many individuals in the society had a low level of trust in the COVID-19 vaccines, yet ultimately decided to be vaccinated for reasons primarily related to regaining freedom and, rarely, for medical or health-related reasons [12].

These data highlight the need to question the usefulness of the CST as a coercive tool to increase vaccination rates. Indeed, as shown in Table 1, all the pro-CST individuals were vaccinated and had confidence in the COVID-19 vaccines, while the vast majority of the anti-CST individuals were unvaccinated (81.0%), did not have confidence in the COVID-19 vaccines (90.6%) and were not afraid of COVID-19 (90.7%). It is therefore unlikely that a tool such as the CST would increase the vaccination rate satisfactorily among individuals who are not afraid of the disease and, above all, do not have confidence in the COVID-19 vaccines. The 'anti-CST' population – which is probably over-represented in this survey sample – vehemently criticizes the CST:

'An aberration since the vaccine does not prevent transmission – the aim: to punish the unvaccinated.'

'It has even contributed to the spread of the virus among people who thought they were protected by the vaccine.'

'It is a tool that allows people to infect with impunity. It is discriminatory and serves to push people to get vaccinated.'

Although this study focused on people who supported the CST, there were still arguments indicating limitations of the instrument and proposals for improvement. However, no 'middle ground' emerged in this respect, as proposals ranged from limiting application of the CST to the strict minimum in terms of sectors and time, to expanding its use to all aspects of society, and granting it to vaccinated people alone. The feared polarization of society was even noticed in the minority of respondents who supported the CST.

This mixed methods study built on a sample of 617 respondents, and reinforces the value of the evidence produced. However, it has methodological limits. It was based on a voluntary survey, and the study population was not fully representative of the French-speaking Belgian population. The qualitative study was based on responses to one of the open-ended questions, and only included the views of those participants who were motivated to answer it. It could benefit from being complemented by in-depth interviews to gain more insights. Finally, the coding was performed by segment and not by respondent; this enabled the authors to get an idea of the number of respondents supporting various arguments, but does not allow analysis of the possible contradictions within some responses.

Conclusion

Overall, the expectations of people in favour of the CST were high and numerous. They generally related to individual and collective protection, but also encompassed factors such as regaining the freedom they had before the pandemic, and incentivizing or even 'punishing' unvaccinated people. Impacts from implementation of the CST have not been evaluated in Belgium, but seem to be limited in terms of increasing vaccination coverage (which was high before implementation of the CST) and limiting the number of infections (considering the high Omicron wave observed in January 2022). Nevertheless, the CST exacerbated stigmatization of unvaccinated people, and led to social divide or even polarization in society. The high expectations of the CST risk comparably high levels of disappointment, even among pro-CST people, and distrust towards future public health interventions.

Conflict of interest statement

None declared.

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Ethical approval

The survey was voluntary and did not require explicit ethical approval. However, it was designed in accordance with the Declaration of Helsinki, comprising: informed consent, voluntary participation in the study, freedom to quit the questionnaire at any time without constraint and without justification, ability to erase all their data, confidentiality, completely anonymous (the data file did not contain any names or e-mail addresses that could be used to identify the participants, and the IP address was requested to avoid duplicates and was erased from the shared analysis file, making the data anonymous), and the provision of a specific e-mail address in case of questions (qcovid19@uliege.be) at the end of the questionnaire.

Supplementary materials

Supplementary material associated with this article can be found, in the online version, at doi:10.1016/j.ijregi.2023.01.010.

References

- [1] Ward JK, Gauna F, Gagneau-Brunon A, Botelho-Nevers E, Cracowski JL, Khouri C, et al. The French health pass holds lessons for mandatory COVID-19 vaccination. *Nat Med* 2022;28:232–5.
- [2] Bardosh K, de Figueiredo A, Gur-Arie R, Jamrozik E, Doidge J, Lemmens T, et al. The unintended consequences of COVID-19 vaccine policy: why mandates, passports and restrictions may cause more harm than good. *BMJ Glob Health* 2022;7:e008684.
- [3] Sciensano. Belgium COVID-19 epidemiological situation 2022. Available at: <https://datastudio.google.com/embed/reporting/c14a5cfc-cab7-4812-848c-0369173148ab/page/ZwmOB> (accessed 14 May 2022).
- [4] Greenberg J, Arndt J. Terror management theory. In: *Handbook of theories of social psychology*. London: SAGE Publications; 2012. p. 398–415.
- [5] Pyszczynski T, Lockett M, Greenberg J, Solomon S. Terror management theory and the COVID-19 pandemic. *J Humanist Psychol* 2021;61:173–89.
- [6] Slama M. En faisant des non-vaccinés des ennemis de la nation, le Président se pose en diviseur des Français. Le Figaro 5 January 2022. Available at: <https://www.lefigaro.fr/vox/politique/en-faisant-des-non-vaccines-des-ennemis-de-la-nation-le-president-se-pose-en-diviseur-des-francais-20220105> (accessed 6 February 2023).
- [7] Sleat D, Innes K, Parker I. Are vaccine passports and COVID passes a valid alternative to lockdown? *BMJ* 2021;375:n2571.
- [8] Sun N, Christie E, Cabal L, Amon JJ. Human rights in pandemics: criminal and punitive approaches to COVID-19. *BMJ Glob Health* 2022;7:e008232.
- [9] Landau MJ, Solomon S, Greenberg J, Cohen F, Pyszczynski T, Arndt J, et al. Deliver us from evil: the effects of mortality salience and reminders of 9/11 on support for President George W. Bush. *Pers Soc Psychol Bull* 2004;30:1136–50.
- [10] Pazhoohi F, Kingstone A. Associations of political orientation, xenophobia, right-wing authoritarianism, and concern of COVID-19: cognitive responses to an actual pathogen threat. *Personal Individ Differ* 2021;182:111081.
- [11] Mills MC, Rüttenauer T. The effect of mandatory COVID-19 certificates on vaccine uptake: synthetic-control modelling of six countries. *Lancet Public Health* 2022;7:e15–22.
- [12] Gbenonsi GY, Labat A, Oleffe A, Jidovtseff B, Servais O, Vermeulen N, et al. Factors associated with COVID-19 vaccination among individuals with vaccine hesitancy in French-speaking Belgium. *JAMA Netw Open* 2022;5:e2234433.
- [13] COVID Vaccinations Belgium. 2022. Available at: <https://covid-vaccinatie.be/en>
- [14] Sobkow A, Zaleskiewicz T, Petrova D, Garcia-Retamero R, Traczyk J. Worry, risk perception, and controllability predict intentions toward COVID-19 preventive behaviors. *Front Psychol* 2020;11:582720.
- [15] Judge TA, Erez A, Bono JE, Thoresen CJ. Are measures of self-esteem, neuroticism, locus of control, and generalized self-efficacy indicators of a common core construct? *J Pers Soc Psychol* 2002;83:693–710.
- [16] Krampe H, Danbolt LJ, Haver A, Stålsett G, Schnell T. Locus of control moderates the association of COVID-19 stress and general mental distress: results of a Norwegian and a German-speaking cross-sectional survey. *BMC Psychiatry* 2021;21:437.
- [17] Braeye T, Catteau L, Brondeel R, van Loenhout JAF, Proesmans K, Cornelissen L, et al. Vaccine effectiveness against onward transmission of SARS-CoV-2-infection by variant of concern and time since vaccination, Belgian contact tracing, 2021. *Vaccine* 2022;40:3027–37.
- [18] Madewell ZJ, Yang Y, Longini IM Jr, Halloran ME, Dean NE. Household secondary attack rates of SARS-CoV-2 by variant and vaccination status: an updated systematic review and meta-analysis. *JAMA Netw Open* 2022;5:e229317.
- [19] Franco-Paredes C. Transmissibility of SARS-CoV-2 among fully vaccinated individuals. *Lancet Infect Dis* 2022;22:16.
- [20] Nordström P, Ballin M, Nordström A. Risk of SARS-CoV-2 reinfection and COVID-19 hospitalisation in individuals with natural and hybrid immunity: a retrospective, total population cohort study in Sweden. *Lancet Infect Dis* 2022;22:781–90.
- [21] Hegtvedt KA, Killian C. Fairness and emotions: reactions to the process and outcomes of negotiations. *Soc Forces* 1999;78:269–303.
- [22] Zeelenberg M, van Dijk WW, Manstead ASR, van der Pligt J. On bad decisions and disconfirmed expectancies: the psychology of regret and disappointment. *Cogn Emot* 2000;14:521–41.
- [23] Paul E, Brown GW, Kalk A, Van Damme W, Ridde V, Sturmberg JP. When my information changes, I alter my conclusions.' What can we learn from the failures to adaptively respond to the SARS-CoV-2 pandemic and the under preparedness of health systems to manage COVID-19? *Int J Health Policy Manag* 2020;11:1241–5.
- [24] Sturmberg J, Paul E, Van Damme W, Ridde V, Brown GW, Kalk A. The danger of the single storyline obfuscating the complexities of managing SARS-CoV-2/COVID-19. *J Eval Clin Pract* 2022;28:1173–86.