Adoption of and attitudes towards Coronalert, Belgium's COVID-19 contact tracing app.

Summary of research results

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More information about this study and publications can be found on the following website.

Introduction

One way to rapidly detect and limit the spread of the coronavirus is digital contact tracing: using a mobile app that automatically records close contacts, including those we might forget or don't know personally. Various digital contact tracing applications have been developed around the world. Belgium has developed the Coronalert application. Although the app was launched on September 30, and reports emerged on the number of downloads, it remains a bit silent on the use and impact of the app. However, the use of the application will remain important in the near future, as the vaccination campaign is carried out in phases across the country. In addition, recent research shows that 65% of Belgian citizens want to be vaccinated. This means that almost 4 in 10 would not. A contact tracing app can therefore still prove its usefulness because, when a person is infected with COVID-19, time is running out to notify possible contacts.

The app in a nutshell

Coronalert exchanges random, anonymous codes via Bluetooth with other app users who are close to each other (less than 1.5m away for at least 15 minutes). These anonymous codes are stored on your smartphone for fourteen days. When you test positive for COVID-19, you will be asked to share the positive test result and anonymous code with the central database. This request is voluntary. All smartphones on which the Coronalert app is installed connect to the database on a daily basis. Your device checks the anonymous codes of the app users who have shared their positive test result and anonymous code with the database, and a possible match is searched for. This control is completely decentralized (on your device). If no match with the codes is found, you will see a green screen (i.e., low risk). If there is a match, you will see a red screen (i.e., high risk). A warning will then appear that you have had a risk contact, namely a close contact with someone who has tested positive for the coronavirus. However, no information is released about who is infected, or where this contact took place. When there is a positive match, you will be advised to self-isolate immediately and get tested if you show symptoms.

The system offers important privacy safeguards: it only serves to detect close contacts with COVID-19 infected persons, does not track location data and does not link information with personal data. This system is based on the DP-3T protocol and has also been implemented in a large number of EU countries and US states. Cross-border interoperability is developed, in other words, the app can also be used in other countries that use the same system. But for such an app to function optimally, its widespread adoption by the population is crucial.

Study

Therefore, an online survey was conducted to investigate use of and attitudes towards Coronalert. The survey was completed by 1850 (Dutch speaking) Belgians during the period from October 30 to November 2, 2020 (see annex 1 for more information).

To better reflect the population, the sample was stratified in terms of sex, age, level of education and job type.

The main findings of the study are grouped around ten questions. For more detailed results, please refer to the full research report and publications.

1. How many people use the Coronalert app?

In total, 35.1% of respondents have already installed the Coronalert app. 7.8% have not yet opened or started the app and 3.5% have already deleted the app.

Of those who have not yet installed the Coronalert app on their smartphone, only 14.1% intend to use it in the future.

The survey also showed that no significant difference was found in terms of gender, age, level of education and state of health.

2. What is the usage frequency?

Slightly more than half of the Coronalert users open the app daily. This may indicate that a majority of users, even after installing the app, check their risk level. At the same time, they see the weekly average of the number of infections, hospital admissions and deaths on the home screen of the app. This home screen could also be optimally used by offering concrete advice to the user on how to protect oneself against the coronavirus. The home screen could also encourage the user to recommend the Coronalert app to acquaintances.

3. Why didn't some people download the app?

The three most cited reasons are: (1) people see little advantage in using the app (31.1%), (2) they fear their privacy is not guaranteed (29.3%) and (3) some people fear they will experience stress when using the app (21.0%).

These results suggest that some respondents are still insufficiently informed about the usefulness and functioning of Coronalert. A clearer picture of this could increase the willingness to use the app. Some participants also indicated that they would experience stress while using the app. The possibility of being faced with a 'red screen' (which signals one or more risk contacts), or uncertainty about what steps to take, could be a possible cause of this stress. A clearer picture of what a red screen means, a better support when dealing with this message and with a positive test result can reduce this uncertainty and stress.

Other reasons for not installing the app include: worries about how the government will handle information (19.2%), lack of trust (17.8%), or the opinion that they have a low risk of being infected with the coronavirus (13.9%). In addition, one in ten fears that using the application (and therefore also Bluetooth) will drain the smartphone's battery more quickly (9.7%).

4. What factors influence (the willingness) to use Coronalert?

Regarding the intention to use Coronalert, the study established the influence of the following factors.

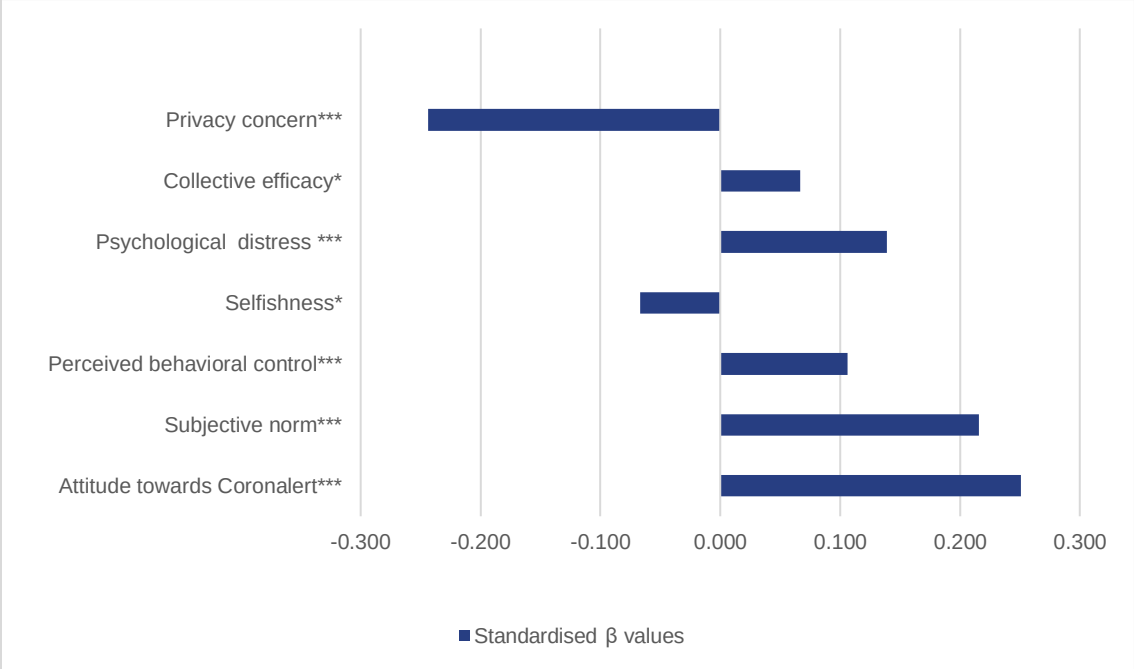

Figure 1 Variables predicting app use intention.

Note – Only significant relations have been integrated in this graph (* <.05 and *** <.001). Standardised β values give an indication of the strength of a variable's (positive or negative) relationship with use intention.

Attitude towards Coronalert, subjective norm, perceived behavioral control, psychological distress and collective efficacy are all factors that positively influence intention to use the app. On the other hand, people with privacy concerns, but also people scoring higher on selfishness, have less intention of using Coronalert.

In other words: the more positive one is about the results one can achieve by using the app, the more one is guided by the fact that other people (e.g., a family member) are also using the application, the easier to use the application is considered to be, the more respondents intend to use it. But also, the more depressed one feels about the covid-19 crisis (i.e., psychological distress), and the more one feels that people's conjoint efforts can decrease the impact of the COVID-19 crisis for the community (i.e., collective efficacy), the more one intends to use Coronalert.

Additionally, users and non-users differ from each other on certain characteristics. For example, non-users have on average a less positive attitude towards the Coronalert app and are generally more selfish and more concerned about their privacy. Users are generally more guided by the fact that others also use the app and find the app easier to use. Users also score higher when it comes to civic attitudes.

Concerning behavioral control, potential users need to be convinced that the app is easy to use. Emphasizing this in the communication about the app could increase the adoption rate. Also showing the effectiveness of the app, would positively influence individuals' attitude. App users also score on average higher on civic attitudes. This result, together with the positive link between collective efficacy and user intention, can stimulate the app developers and administrators to promote the app as a tool by which individuals can contribute in solidarity to a system of rapid COVID-19 detection, which will lead to a gradual return to 'normal life' while at the same time limiting the further spread of the virus.

Furthermore, it appears that psychological distress associated with the COVID-19 crisis and subjective norm are positively linked with intention to use the app. In short, people for whom the COVID-19 crisis is currently having a serious (psychological) impact are more likely to install the app. It is therefore crucial that users, and these individuals in particular, are properly guided in dealing with any negative news (a "red screen").

The extent to which family members, friends, but also the government and health scientists are expected to approve of using Coronalert (i.e., subjective norm), also positively influences the intention to use the app. That is why concrete recommendations from loved ones are important, but also testimonials of virologists and other scientists known to the public who testify to the use and usefulness of Coronalert.

But there are also factors that have a negative influence on the intention ~~of~~ to use. The more concerned people are about privacy, but also the more selfish they are, the lower the intention to use.

5. What concerns do citizens have about Coronalert?

An important finding is that privacy concerns play an important role in the decision to not use the Coronalert app. This despite the fact that the app works completely anonymously and does not collect any personal data. This finding suggests that there is still insufficient knowledge about the app.

A clearer picture of how the app works, and how it protects users' privacy, could increase app adoption (see, for example, the video about privacy accompanying the NHS COVID-19 app).

6. How are participants informed about the application?

Before participating in the survey, 48.5% of respondents had already seen or consulted information on the Coronalert app. This means that just over half of people had not yet received or viewed information on the app.

Respondents who had already been informed about Coronalert received information mainly via television (59.9%), the written press (49.4%), targeted information campaigns (24.9%), radio (23.7%) and messages via contacts on social network sites (19.9%).

However, there is a lack of information provided by the app's developers. It is important that such campaigns focus in particular on how the app works and how it protects the privacy of users. Some examples from abroad are the campaigns around the Corona-Warn-App (Germany), NHS COVID-19 app (United Kingdom), COVID Tracker app (Ireland) and Coronamelder app (the Netherlands), where a video makes clear and visual explains how the app works.

In Belgium, the institutions responsible for Coronalert and also Agoria have developed some videos for the promotion of Coronalert. On the website of Coronalert we currently find written text, some illustrations, and a link to a video about installing the app on YouTube. According to our information, only VRT NWS (2020), the Belgian public service broadcaster, has made a video about how the app works.

For a fifth of respondents (19.9%), contacts on social networks were therefore a source of information on the Coronalert application. Therefore, app users can be encouraged to testify about the app and convince their online network to use it. Just think of a Coronalert frame for a profile picture on Facebook, testimonials from influencers, challenges within one’s (online) network (challenges of groups of friends, companies, schools).

7. How to deal with a 'red screen'?

In the survey, users were asked if they had ever encountered a ‘red screen’, the warning that they had had risk contact with someone who turned out to be infected by COVID-19, or if they had ever issued a warning because they were infected with the virus.

About 4.6% had previously been warned through the app that they had had a risk contact and may have been infected with COVID-19. In total, only 2.2% of users, themselves infected with COVID-19, shared the result of their test with the database and thus informed, anonymously, the users with whom they had had a risk contact. This suggests that either only a few users of the Coronalert app have been infected with COVID-19, or that only a few users are willing to anonymously share their positive test result with the database to thereby notify other users of the application.

8. How would users react on a ‘red screen’?

Current users were also asked how they would react if faced with a red screen and thus the warning of a risk contact. Most respondents say they will respond in a way that would prevent further spreading of the virus. This is done by avoiding face-to-face contact and, if there is close contact, keeping a distance from others and wearing a mouth mask (94.1%). More than nine in ten respondents (92.9%) would request a test code through the app (to be able to get tested for COVID-19). Some 73.6% of respondents would decide to be tested. In this situation, no less than 73.3% declared that they would initiate the procedure for transmitting the anonymous codes of the mobile phones with which they had come into close contact. A large majority (87.7%) also said they would personally notify people with whom they had close contact.

9. A "green screen" as an entrance ticket?

In certain countries, COVID-19 contact tracing apps are also used to regulate access to certain areas (e.g., access is gained if the app indicates that they did not have risk contact).

More than a third of respondents agree that the organizer of an event (37.2%), an employer (32.7%) or a school (36.9%) would deny access to buildings if individuals are not able to show a 'green screen’ in their Coronalert app.

10. What options for the application would (not) be accepted?

Some countries' contact tracing apps already offer additional options. For example, the NHS Covid-19 app (UK) and COVID Tracker app (Ireland) offer a symptom checklist and the option to contact a doctor or other healthcare professional for advice. Some of these options may increase the usefulness of the application for users. However, other options also have implications for privacy, citizens’ free movement and other individual rights. It is for this reason that the study also examined what citizens think about these options.

The installation of the Coronalert app is currently voluntary. But would the population accept an automatic installation on their smartphone? Only a third (35.2%) of respondents would agree with an automatic installation of the application on smartphones.

Half of the respondents are positive about the integration of a questionnaire in the application so that users can assess their symptoms and make a first diagnosis (49.8%).

Six in ten (63.1%) would also find it useful to be able to make an appointment for a COVID-19 test via the app. Half of the respondents (55.7%) would also like to be able to contact a health worker directly through the app, for advice on the virus. This direct contact could also be useful for app users stressed by seeing a ‘red screen’ and who wish to be guided through the next steps to take (e.g., quarantine and asking to be tested).

Half of respondents (54.3%) consider it helpful to get additional advice through the app on how to protect oneself against the virus.

Annex 1 Sample characteristics

	n (%)
Gender	
Male	917 (49.6%)
Female	933 (50.4%)
Age	M = 45.29
	SD = 14.42
Education	
Maximum lower secondary education	392 (21.2%)
Higher secondary education	726 (39.2%)
Higher education	732 (39.6%)
Type of employment[1]	
Worker	456 (24.6%)
White collar worker, civil servant or executive	1170 (63.2%)
Self-employed or liberal profession	248 (13.4%)
Flexi-job	43 (2.3%)
Other	6 (0.3%)
Health risks (suffering from one or several diseases that can be a risk factor when covid-19 positive)	
Yes	694 (37.5%)
No	1006 (54.4%)
I don't know	150 (8.1%)

[1] Several answers possible, therefore the sum is not equal to 100.

More information about this study and publications can be found on the following website.

For further information, please contact Michel Walrave at michel.walrave@uantwerp.be
The full research report (in Dutch) and publications (in English) within this research project, can be obtained.

More information about the project *Stimulating Adoption of COVID-19 Contact Tracing Apps* can be found online.

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