EUCLID-Project
Risk perceptions & behavior in the context of the current Coronavirus outbreak

1. Report, March 26, 2020

Focus: Germany, Data Collection 2020-02-02 to 2020-03-15

Britta Renner, Julia Koller, Nadine Lages, Karoline Villinger & Harald Schupp
University of Konstanz,
Germany

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Project overview

In response to the ongoing public health emergency due to the Coronavirus (SARS-CoV-2 and the associated disease COVID-19) outbreak worldwide, the University of Konstanz developed an online survey “EUCLID” to track:

1. Subjective health & symptoms,

2. Perceived risk & outbreak related perceptions,

3. Protection motivation & behavior,

4. Expected future developments of the current outbreak.

In the context of the current outbreak of the Coronavirus pandemic, it is of great interest and importance to record and compare risk perception and behavior with regard to the disease both in Germany and worldwide. The aim of the EUCLID study is to assess participants' perceived health, their risk perception and their expectations with regard to the outbreak of the Coronavirus. In addition, current behavior and changes in behavior since the outbreak of the virus as well as the protection motivation are examined. Furthermore, perceptions and beliefs regarding future developments in the context of the current outbreak are assessed. In order to capture changes over time and in relation to the current outbreak, both repeated cross-sectional and longitudinal surveys are conducted.

1.1 EUCLID team at the University of Konstanz

Responsible PIs: Prof. Dr. Britta Renner, Julia Koller, Nadine Lages, Dr. Karoline Villinger, Prof. Dr. Harald Schupp

Student team at the University of Konstanz: Isabel Brünecke, Joke Debbeler, Kai Engel, Sofia Grieble, Leonie Hartmann, Peer Homann, Sarah Höschele, Anna Katz, Robin Kaufmann, Johanna Knecht, Kim-Marie Koppe, Jennifer Martens, Hannah Oppenheimer, Vanessa Radtke, Friederike Roelcke, Sarah Rogula, Wiebke Schneider, Leonie Schuhmacher, Nelly Theiss

1.2. Study Methods

Online questionnaires (German, English). Cross-sectional design with nested longitudinal assessments.

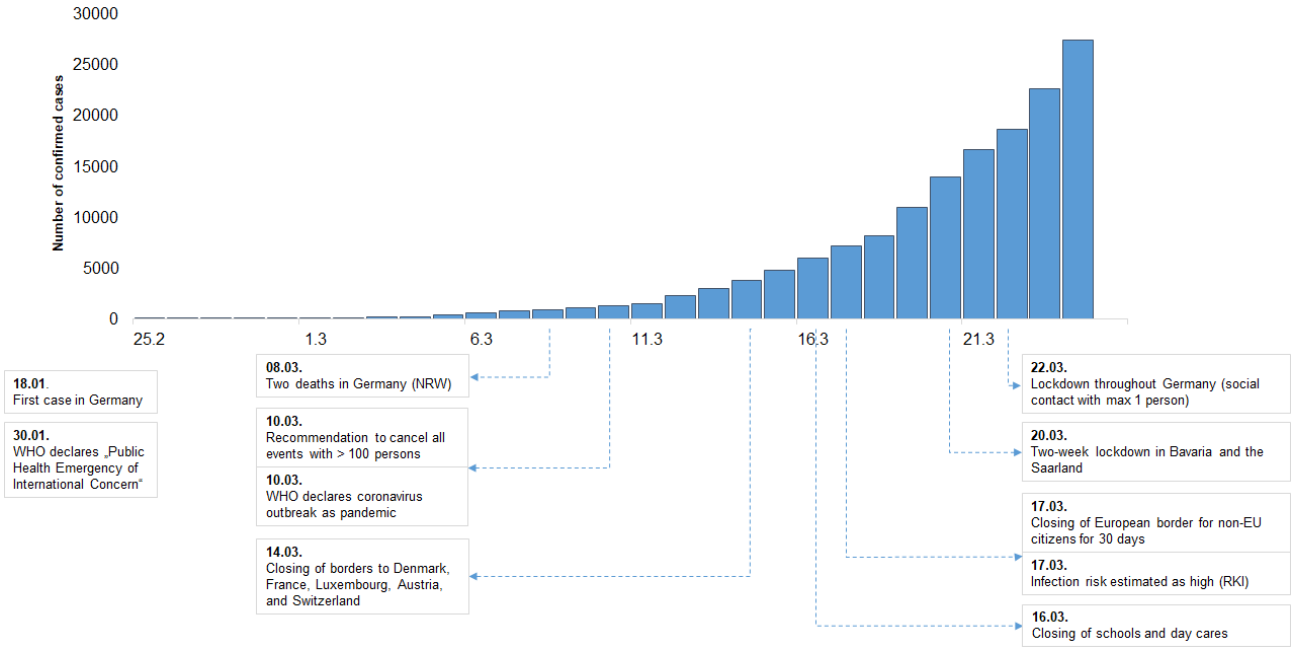
Recruitment: Online panel (Prolific Academic), social media (e.g. Facebook, Twitter), and email lists using a snowball system. Participation is voluntary and participants can withdraw at any time without any consequences. As compensation, participants could take part in a lottery.

Note: Cross-sectional data do not allow drawing conclusions about causal relations. They represent only a snapshot of the self-reports at the time of the survey. Furthermore, collected data is not representative for the German population and therefore, any conclusion drawn from this data cannot be portrayed as being representative of the whole population.

Data collection: Data collection started February 02, 2020 as part of a student project.

Funding: DFG FOR 2374 RiskDynamics, BMBF 01EL1420A SMARTACT, EXC 2117 Collective Behavior

The Coronavirus outbreak: Confirmed cases and governmental decisions (Germany)



Sources: Bundesgesundheitsministerium (www.bundesgesundheitsministerium.de/coronavirus/chronik-coronavirus.html), Robert Koch Institute (www.rki.de/DE/Content/InfAZ/N/Neuartiges_Coronavirus/Situationsberichte/Archiv.html).

Results are reported for three assessment periods (calendar weeks [CW])

1. Period: CW 5 (start: 2020-02-02) &
   CW 6 & 7 (2020-02-03 – 2020-02-16)
2. Period: CW 8 & 9 (2020-02-17 – 2020-03-01)
3. Period: CW 10 & 11 (2020-03-02 – 2020-03-15)

1.3 Sample characteristics (Germany)

2,374 participants, *M* = 34 years old (18-99 years, *SD* = 14), 70% female, 46% employed and 45% in education or training

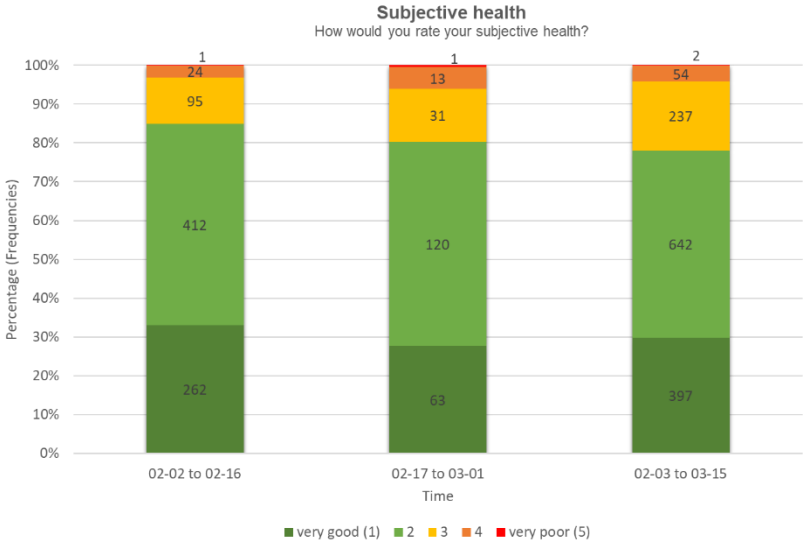
1. Period: 794 participants, *M* = 32 years old (18-84 years, *SD* = 14), 66% female, 37% employed and 56% in education or training
2. Period: 228 participants, *M* = 29 years old (18-68 years, *SD* = 11), 72% female, 36% employed and 60% in education or training
3. Period: 1,352 participants, *M* = 36 years old (18-99 years, *SD* = 14), 71% female, 53% employed and 36% in education or training

Results

2. Subjective health & symptoms

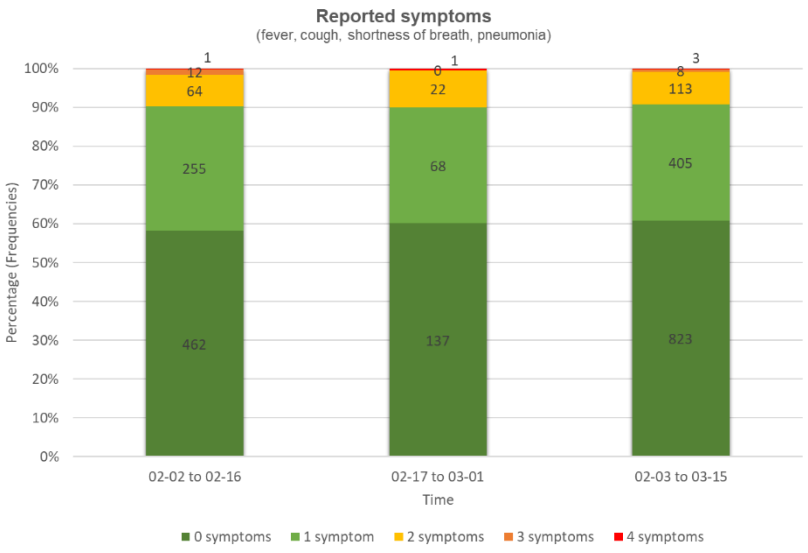
2.1 Subjective health

Overall, participants reported a very good or good health status: 81% of participants reported a very good or good current health status ($M_{overall}$ = 4.07, *SD* = 0.79). Furthermore, subjective health remained relatively stable across the three assessment periods. Only a very small difference between the first to the third period was observed (M_{P1} = 4.15, *SD* = 0.75, M_{P2} = 4.01, *SD* = 0.83, M_{P3} = 4.04, *SD* = 0.81, $F(2, 2351) = 5.62$, $p = .004$).



2.2 Disease symptoms

While during the different assessment periods, 58% or more of the participants did not report one of the four assessed "core" symptoms and illness signs (cough, fever, shortness of breath, pneumonia), between 8% to 10% reported two or more symptoms. No changes between assessment periods were observed ($X^2(8) = 9.9$, $p = .269$).



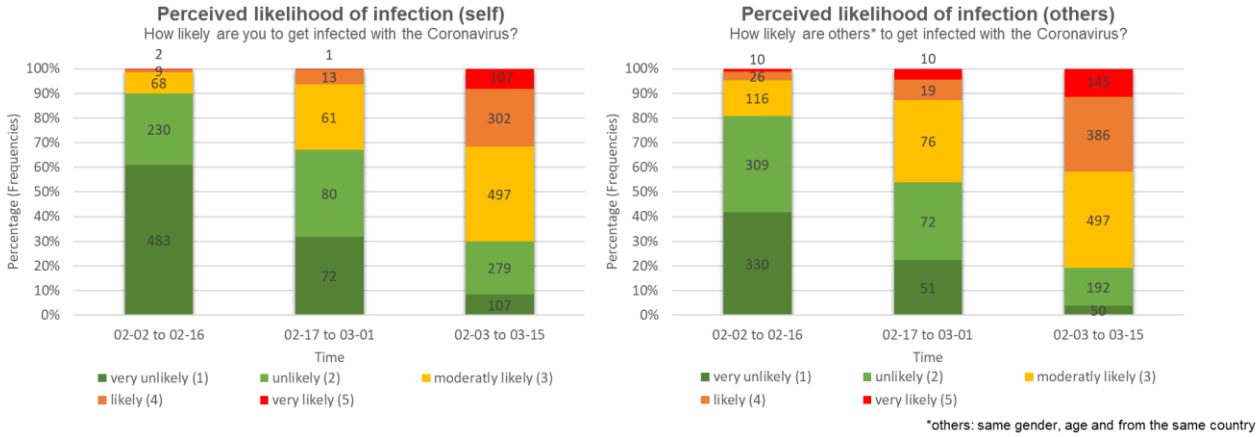
3. Perceived risk & outbreak related perceptions

3.1 Perceived likelihood of getting infected: Self and others' risk

In line with the increase of confirmed cases in Germany, the perceived own likelihood of becoming infected with the Coronavirus increased over time. In March, 32% of the participants considered it likely or very likely to become infected with the Coronavirus, indicating a substantial increase compared to the first (1%) and second (6%) assessment period (X2(10) = 922.59, p < .001).

A similar pattern of results emerged for the perceived likelihood that others become infected with Coronavirus. The perceived average infection risk for others increased substantially from the first to the third assessment period ($p < .001$).

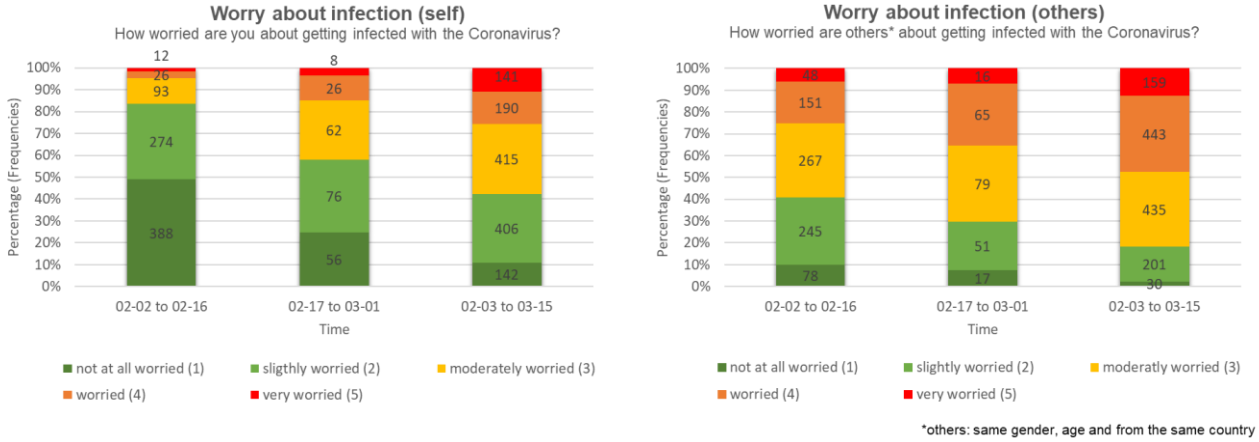
However, although participants felt more at risk and also saw others more at risk as the outbreak situation progressed, indicating an adaptive outlook, they generally believed that others are more at risk than they are themselves, indicating an optimistic bias in risk perceptions ($F(1,2282) = 199.45$, $p < .001$).



3.2 Affective risk perception: Worry about getting infected

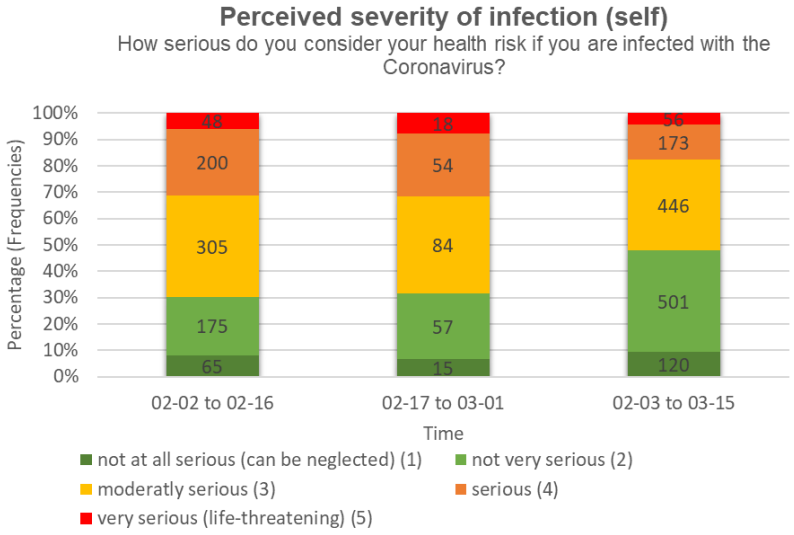
Similarly to the perceived likelihood of becoming infected with the Coronavirus, worry about getting infected increased over time ($F(2,2281) = 255.56$, $p < .001$)**.** In the beginning of February, only 5% were worried or very worried about getting infected with the Coronavirus. During the following two weeks, worry rose to 15%, and in the beginning of March, 26% reported being worried or very worried about becoming infected ($X^2(10) = 494.42$, $p < .001$).

Overall, an optimistic bias emerged. Participants felt less worried ($M = 2.41$, $SD = 1.18$) than they believed others are ($M = 3.16$, $SD = 1.04$, $F(1, 2281) = 532.44$, $p < .001$). Furthermore, an interaction over time appeared indicating that the participants' worry of becoming infected themselves increased more compared to the increase in the perceived worry of others ($F(2, 2281) = 41.17$, $p < .001$).



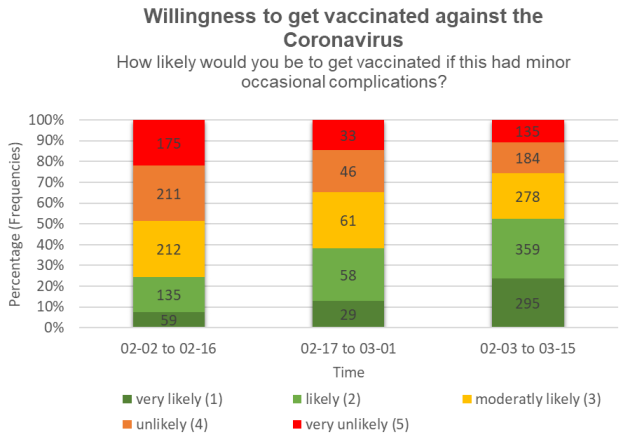
3.3 Perceived severity of an infection

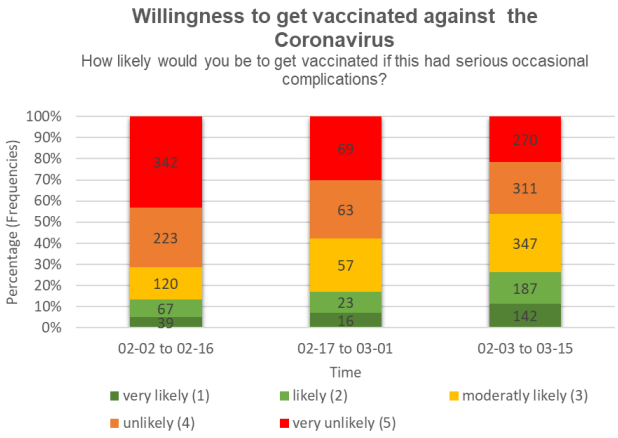
In contrast to the findings of perceived likelihood and worry, the perceived severity of an infection with the Coronavirus decreased over time ($F(2, 2314) = 34.63$, $p < .001$)**.** While perceived severity remained stable between the first and the second assessment period ($M_{P1} = 2.99$, $SD = 1.02$, $M_{P2} = 3.01$, $SD = 1.04$) in February, it decreased in March ($M_{P3} = 2.65$, $SD = 0.97$) compared to both the first and the second assessment period (all $ps < .001$). Specifically, while about 31% of the participants considered a Coronavirus infection as a serious or very serious threat to their health in the beginning and end of February, in the beginning of March solely 18% of participants considered the harm caused by an Coronavirus infection as serious or very serious and life-threatening ($X^2(8) = 98.02$ $p < .001$).



3.4 Willingness to get vaccinated against the Coronavirus

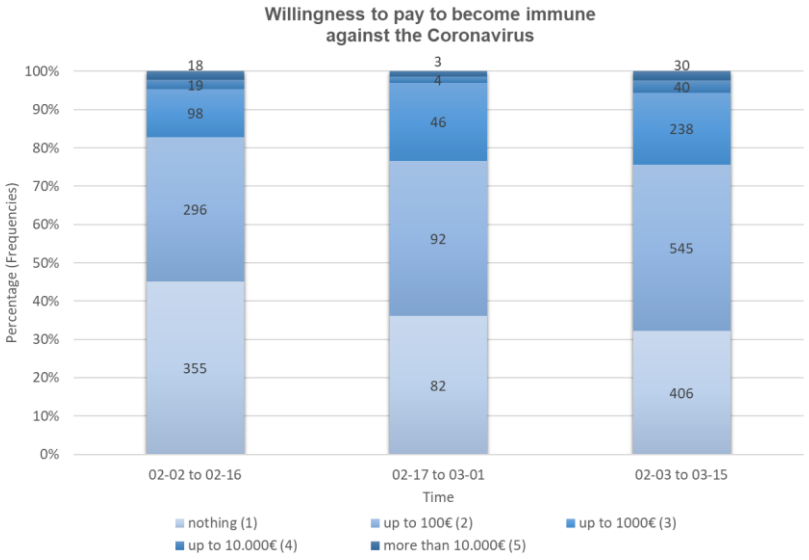
The willingness to get vaccinated (assuming that there is a vaccine available) sharply increased over the three assessment periods ($F(2, 2266) = 105.99$, $p < .001$)**.** When vaccination was described as generally safe (causing only occasionally minor side-effects), the percentage of people reporting to get likely or very likely vaccinated increased from 24% to 38% to 52% across time ($X^2(8) = 186.08$, $p < .001$). As expected, overall likelihood for vaccination was lower when the vaccine was described as causing occasionally serious side-effects ($F(1,2266) = 416.35$, $p < .001$). However, the pattern of increased willingness to get vaccinated was rather similar when the vaccination was described as having occasionally serious side-effects ($X^2(8) = 153.04$, $p < .001$).





3.5 Willingness to pay for immunization

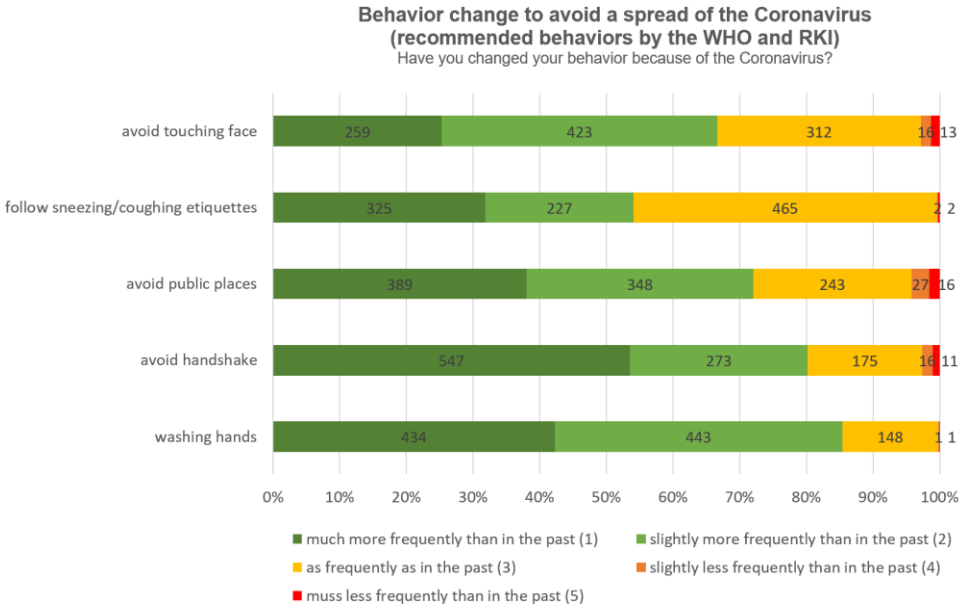
Willingness to pay to become immune against the Coronavirus infection increased over the three assessment periods ($F(2,2269) = 12.93$, $p < .001$)**.** While at the beginning of February, 45% of the participants indicated that they would pay nothing to become immune, at the end of February, only 36% indicated they would pay nothing. The percentage of participants willing to pay 100€ for being immune increased constantly from 38% to 41% within February and to 43% in March. The percentage of participants showing a greater willingness to become immune (i.e. by indicating that they would pay up to 1000€) also rose from 17% in February to 25% in March, ($X^2(8) = 42.20$, $p < .001$).



4. Protection motivation and behavior change (data available from March onwards)

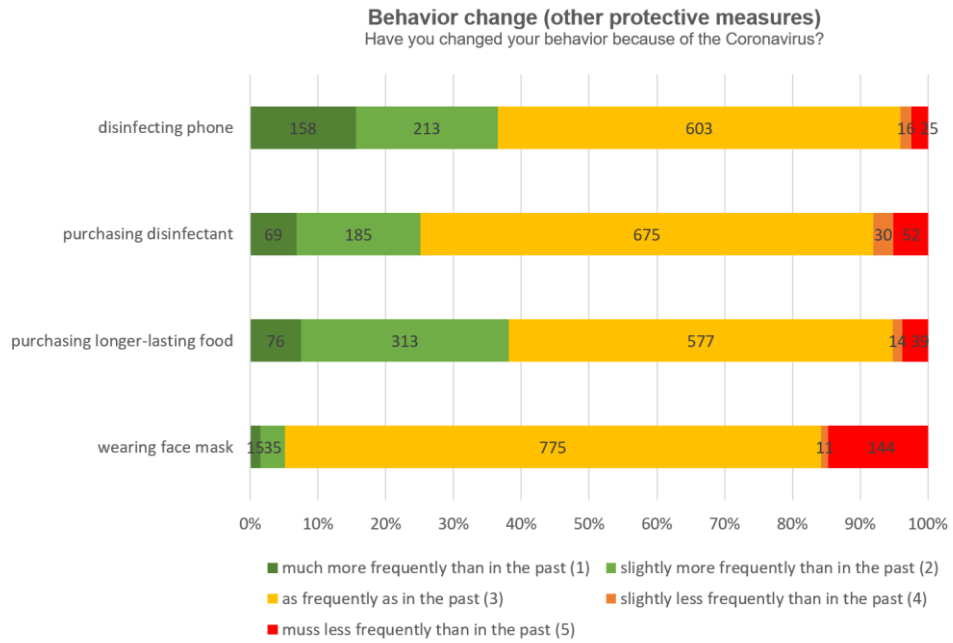
4.1 Behavior change to avoid a spread of the Coronavirus

In March 2020, the vast majority of the participants (about 91%) indicated that they were currently taking protective measures against the Coronavirus. Focusing on protective behaviors recommended by the World Health Organization and the German Robert Koch Institute to contain the spread of the virus, the results show that most participants felt that they had changed their behavior. 86% reported that they are washing their hands much more or slightly more often. Moreover, 80% started avoiding handshakes, 72% are avoiding public places, 54% are following sneezing and coughing etiquettes, and 67% are avoiding touching their face much more or slightly more frequently.



4.2 Behavior change regarding other protective measures

Participants also changed other behaviors as a response to the Coronavirus outbreak. 38% of the participants reported that they had bought longer-lasting foods, 25% purchased disinfectant or hygiene products and 37% stated that they disinfect their mobile phone much or slightly more frequently. In contrast, only a small percentage of 5% indicated to wear face masks much or slightly more frequently.



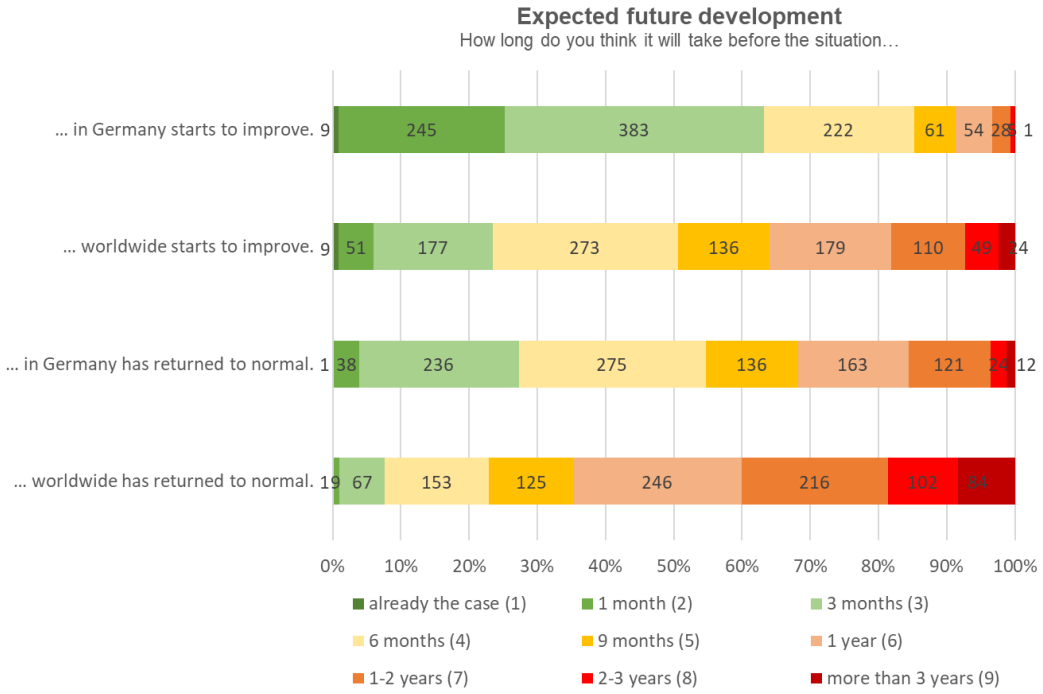
5. Expected future development in the context of the current outbreak (data available from March onwards)

5.1 Expected general development worldwide and in Germany

Participants assume that Germany will recover faster from the outbreak as compared to other countries worldwide.

Overall, participants expect that the situation will start to improve faster in Germany than worldwide ($X^2(64) = 791.50$, $p < .001$)**.** 63% of the participants expect that the situation in Germany will start to improve in the next three months or even faster. Only 9% expect that it will take at least a year or even longer. The future outlook for the situation worldwide is generally more pessimistic: Only 24% of the participants expect that the situation will start to improve within the next three months and 36% assume that it will take at least one year.

Participants also expect that Germany will recover and return back to normal faster ($X^2(64) = 2226.78$, $p < .001$)**.** 84% of the participants assume that it will take 12 months or less before the situation has returned to normal in Germany. In contrast only 60% of participants expect that it will take 12 months or less until the situation has returned to normal worldwide.



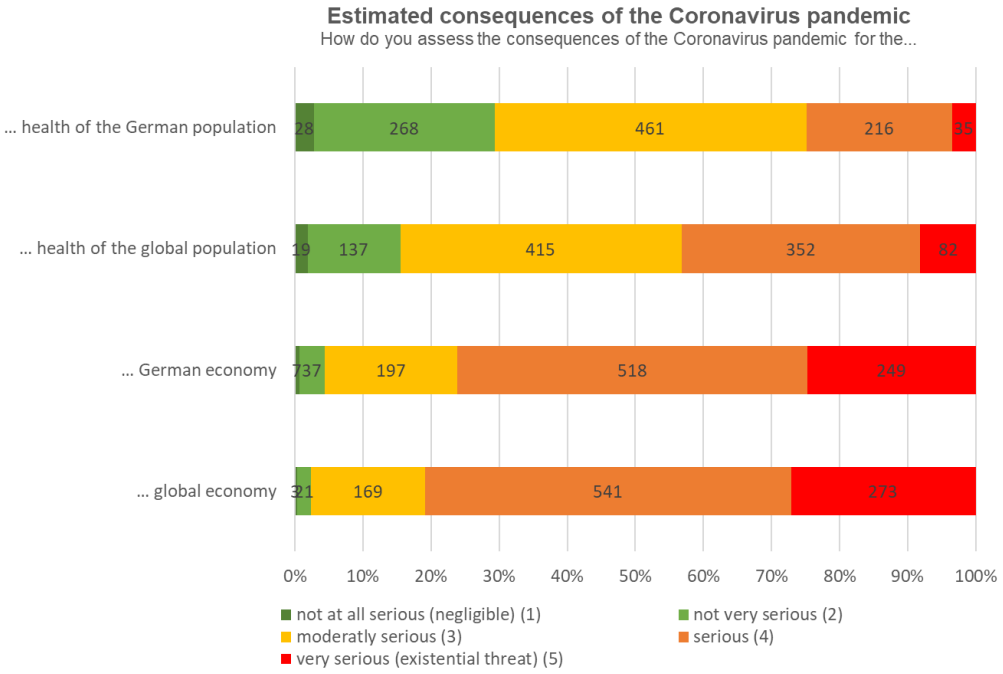
5.2 Expected health and economic consequences

Participants believe that German citizens will face less serious health consequences compared to the global population. Consequences for the economy are seen as being more serious than for public health.

With regard to health, the majority of the participants (75%) are rather optimistic expecting none to moderately serious health consequences. Only 4% expect very serious health consequences for the German population. In addition, the health consequences are estimated to be less serious for the German population as compared to the population worldwide ($X^2(16) = 1151.00$, $p < .001$). About 57% assume none to moderately serious health consequences for the global population. 8% expect that the outbreak will have very serious health consequences for the global population.

Participants assume that the outbreak will cause more serious consequences for the economy than for public health. About 51% of the participants assume that the consequences for the German economy

will be serious and 25% expect very serious consequences. However, participants expect less serious economic consequences for Germany than the worldwide economy ($X^2(16) = 1164.09$, $p < .001$). 54% expect serious and 27% very serious consequences for the world economy.



Summary points

- In line with the increase in confirmed cases in Germany due to the emerging Corona outbreak, participants felt increasingly more at risk for an infection. The rate of participants feeling at risk rose from 1% to 32% between February and March.
- While people respond with increased feelings of risk and worry, the perceived severity of a Coronavirus infection showed a marked decrease between February and March.
- Willingness to get vaccinated and willingness to pay to become immune increased over time. The willingness to pay 1,000€ for becoming immune against the virus rose from 17% to 25% between February and March. The willingness to vaccinate increased from 24% to 52%.
- The majority of people reported that they are currently taking protective measures and that they have changed behaviors to slow down the spreading of the Coronavirus. Behaviors endorsed by public health organizations were more frequently changed than other (potential) protective behaviors.
- Participants believe that Germany will recover faster from the Coronavirus outbreak than the global population. 63% of the participants believe that the situation will start to improve at the latest in the next three months in Germany, while only 24% think we will see a similar development worldwide. 84% of the participants believe that it will take 12 months or less before the situation has returned to normal in Germany. For the situation worldwide, only 60% have a similar positive outlook.
- Consequences for the economy are seen as being more serious than for public health. 76% of the participants assume that consequences for the German economy will be serious or very serious but only 25% expect serious or very serious health consequences for public health in Germany. For the situation worldwide, 81% expect serious or very serious economic and 43% serious public health consequences.

See upcoming survey results for more results.