Will COVID-19-related economic worries superimpose the health worries, reducing acceptance of social distancing measures? A prospective pre-registered study

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Abstract
As of March 2020, social distancing is seen as pivotal in reducing the spread of the novel coronavirus, SARS-COV-2. Many countries, including Germany, recently established a set of strict measures that aim at social distancing, and the population, in general, seems to support these measures. However, the economic impact of these measures will likely be severe. Due to the corona outbreak, the population is thus subjected to two types of threats—a health threat by the virus, and an economic threat caused, to a large extent, by social distancing measures which curb supply and demand. In the present study, we investigate the psychological interplay of both threats on the acceptance of social distancing measures, and argue that with increasing worries about economic damage (which is likely to rise over the next few weeks and months), the now-high acceptance of social distance measures will diminish. In the current preregistration, we propose a set of corresponding hypotheses, which we plan to test using data from the COVID-19 Snapshot MOnitoring (COSMO) instrument, a weekly monitoring survey on "variables that are critical for behaviour change in the population to avoid transmission of COVID-19, including risk perceptions, trust, use of information sources, knowledge as well as barriers and drivers to recommended behaviours" (WHO Regional Office for Europe, 2020, p. 9). While the analyses will primarily focus on the German COSMO survey (COSMO Germany; Betsch et al., in press), additional analyses may be conducted using COSMO data from other countries. Data will be analyzed upon availability of the respective weekly surveys, and regularly updated results will be published as preprints in PsychArchives.

Background, research questions, and hypothesis development
As of March 2020, most European countries have adopted rather strict social distancing measures in order to reduce the spread of the novel coronavirus, SARS-COV-2. Travel bans, prohibition of gatherings, and even general curfews were enforced by a vast number of nations. Such measures have been shown to be effective in reducing the spread of a pandemic (Anderson, Heesterbeek, Klinkenberg, & Hollingsworth, 2020; European Centre for Disease Prevention and Control, 2020), and studies show that a large proportion of the European population supports (or even requests) the implementation of these measures, even if they entail considerable limitations to individual freedom (Blom et al., 2020; Rieger, 2020).

Several renowned virologists and epidemiologists expect that many (though not all) social distancing measures will have to be kept in place for at least several months, if not for the rest of the year 2020 or even longer (Schumann, 2020, March 20; German Society for

Epidemiology, 2020). In fact, without a vaccine, a considerable easing of the social distancing measures will likely lead to another wave of infections, as these measures, on their own, will (almost certainly) not completely eliminate the virus from the population (e.g., Lewis, 2020; Woodward, 2020, March 2). However, the longer such measures are kept in place, the stronger their economic impact will be. In fact, social distancing measures lead to a marked drop in both supply and demand of non-essential goods (e.g., travel bans make it impossible to travel, which considerably impacts the tourism industry), thus essentially 'shutting down' large parts of the economy. In line with this, economists warn that the pandemic will have severe economic consequences, such as substantial increases in unemployment rates and decreases of domestic demand up to the possibility of a sharp recession (Sachverständigenrates zur Begutachtung der gesamtwirtschaftlichen Entwicklung [German Council of Economic Experts], 2020). As first evidence for these claims, unemployment in Norway has quintupled over just a few weeks (Solsvik, 2020, March 24), and the FTSE (Financial Times Stock Exchange) index is lower than at any time during the financial crisis in 2009 (Jones, Brown & Palumbo, 2020, March 28).

As stated above, the acceptance of social distancing measures is currently rather high (Blom et al., 2020; Rieger, 2020, March 25). From a psychological perspective, social distancing is well-suited to reduce the feelings of worry and anxiety that are evoked by the health threat that comes with a pandemic—individuals who stay at home can neither catch nor spread the virus. However, the expected economic downturn will, over the next few months, lead to another potentially existential threat, as more and more people will suffer from or worry about unemployment and shortages of goods. We argue that this economic threat will become more important (both for the individual and for society) than the health threat over time, especially if the social distancing measures are successful in curbing the rate of infections and deaths. As a result, the salience of the benefits of social distancing should be outweighed by the increasing salience of potential negative consequences (possibly mediated by media attention; Betsch et al., 2020).

We therefore argue that the denoted economic threat and the corresponding individual fears and worries will lead (among other factors), beginning from April 2020, to an increasingly controversial discussion on the appropriateness of social distancing measures over the next few weeks and months, as well as to a considerable reduction in the acceptance of and adherence to social distancing measures imposed by governments. Furthermore, in line with statistical models which suggest that social distancing measures will curb the speed of the spread of the epidemic (e.g. Anderson et al., 2020; European Centre for Disease Prevention and Control, 2020; Ferguson et al., 2020; Schmitt, 2020), we expect that the salience of the health threat will diminish over time, which may ultimately lead to a decrease in virus-related worries. Finally, we suggest that the reduction in health-related worries and the increase in economy-related worries may interact and lead to an ever stronger disagreement with social distancing in the population over time. Based on these considerations, we posit the following hypotheses:

Hypothesis 1: Worry about the novel coronavirus will gradually decrease over time in the next few weeks and months.

Hypothesis 2: Worry about the economic consequences of the pandemic will gradually increase over time in the next few weeks and months.

Hypothesis 3: Acceptance of social distancing measures will gradually decrease over time in the next few weeks and months.

Hypothesis 4: Worry about the virus is positively related to the acceptance of social distancing measures[1].

Hypothesis 5: Worry about the economic consequences of the pandemic is negatively related to the acceptance of social distancing measures.

Hypothesis 6: There is an interaction between worry about the virus and worry about its economic consequences on the acceptance of social distancing measures: The negative relation between worry about the economic consequences and the acceptance of social distancing measures (see Hypothesis 5) is stronger if worry about the virus is low (and vice-versa).

Hypothesis 7: The interaction outlined in Hypothesis 6 will become stronger over time in the next few weeks and months.

Upon testing these hypotheses, we will conduct additional exploratory analyses with regard to moderating factors (e.g., age, education, chronic illnesses). For example, the correlation described in Hypothesis 3 might be stronger in younger individuals since they are likely to be more strongly affected by an economic downturn than pensioners, thus resulting in less acceptance of social distance measures. Moreover, we will conduct exploratory analyses with regard to factors associated with social distancing measures. For example, it may well be that not only the acceptance of social distancing measures declines over time, but also the trust in political institutions (i.e., since they had suggested the implementation of social distancing measures in the first place).

Materials and methods

Hypotheses will be investigated using data from the COSMO Germany survey (Betsch et al., in press; Betsch et al., 2020), a serial cross-sectional online study on "variables that are critical for behaviour change in the population to avoid transmission of COVID-19, including risk perceptions, trust, use of information sources, knowledge as well as barriers and drivers to recommended behaviours" (WHO Regional Office for Europe, 2020, p. 9). Furthermore, additional analyses may be conducted using COSMO data from other countries.

Participants and procedure

Since the beginning of March 2020, the COSMO Germany data has been collected weekly using an online panel provider. It is aimed at collecting N = 1000 complete datasets per week; details can be found in Betsch et al. (2020). Participants are German-speaking and live in Germany, and are matched to the German general population regarding age, gender, and residency in German federal states (Nielsen areas).

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[1] It should be noted that Betsch et al. (2020), in the original COSMO Germany preregistration, formulated a similar expectation regarding the relationship between risk perceptions and preparedness and protective behaviors, respectively.

Study design

The study is in a serial cross-sectional format, meaning that a different set of participants is recruited for every wave. As it is a monitoring questionnaire, there are no experimental conditions (Betsch et al., 2020). The time of data collection is considered as a between-subjects factor (Betsch et al., 2020).

Measurement instruments

A complete English-language template of the COSMO questionnaire can be found in the guidance document by the WHO Regional Office for Europe (2020). For the present confirmatory analyses, we will use the following set of items (in their German versions).

Worry about the virus. Individual worries about the virus will be assessed using the item "*The novel coronavirus to me feels … worrying / not worrying*", which is to be answered on a 7-point Likert scale.

Worry about economic impact. We will assess individual worries about the economic impact of the pandemic on two levels: an individual level (worry about becoming unemployed) and a collective level (worry about recession). The following two items will be used: "*At the moment, how much do you worry about (recession) / (becoming unemployed)*", which are to be answered on a 7-point Likert scale ranging from "*don't worry at all*" to "*worry a lot*". Separate analyses will be conducted for both items.

Acceptance of social distancing measures. Since social distancing measures are subject to changes over time, we opted against building an aggregate measure of different social distancing items, but will instead investigate one central item which assesses the non-adherence to the social distancing measures currently employed: "*I think that the measures currently being taken are greatly exaggerated*". Similar to the worry items from above, this item has to be answered on a 7-point Likert scale ("*strongly disagree*" to "*strongly agree*"). Moreover, for a more precise indicator of one central social distancing measure that has been very widely used, we will additionally conduct analyses using the item "*It should only be allowed to leave his house for professional, health or urgent reasons*".

Analysis plan
Timeframe of data analysis

This preregistration was finalized on April 2, 2020. It should be noted that the first four waves of COSMO Germany had already been completed by that time. Considering the prospective nature of the present study, we will consider the March 27 wave (i.e., the fourth wave) as a starting point for our confirmatory analyses (i.e., hypotheses tests). Data collected before that date may be subjected to additional exploratory analyses.

Exclusion criteria

We will use the same exclusion criteria as specified in the original COSMO Germany preregistration (Betsch et al., 2020; e.g., excluding incomplete datasets and treating missing values as missing values).

<u>Statistical analysis</u>

Data will be analyzed by means of regression models. To test our hypotheses, we will use the standard $p < .05$ inference criterion (using one-sided hypothesis tests where appropriate). Moreover, we will correct for multiple testing where appropriate.

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