Working title: Negativity Bias, Conformity Bias and Vaccination Hesitancy

Abstract
Given the public discussion on measures to increase vaccination rates against the Corona virus in Germany and the increasing social conflicts between pro-vaccine parties and anti-vaccine parties, we want to conduct a brief analysis on the reasons of vaccination hesitancy. The aim of the study is to define the seize of each hesitancy-type group (i.e., calculation, convenience, confidence, complacency) and possible correlations with an individuals' negativity bias and conformity bias. The main hypothesis behind that is, that the initial attitude towards vaccines in general hugely impacts an individuals' decision for or against the coronavirus vaccine, amplified through the conformity and negativity biases. The potential negative spiral between initial attitude, conformity and negativity bias might further decrease vaccination willingness. This impact might be evident in varying degree within the different hesitancy-type groups. Along with this, arguments for or against the implementation of certain measures (i.e., which kind of vaccine-hesitancy type can be reached by which measure) should be discussed. An overall aim is to contribute to a public understanding of different vaccination-decision types and a constructive political debate about measures to promote health-enhancing habits.

Research question:
What are the predominant reasons for vaccination hesitancy against Covid-19, are they correlated with an individuals' conformity and negativity bias and which type of governmental measure (i.e., incentives, fines) is effective in different groups of vaccination-hesitancy type?

Study method:
Explorative study on the motives for vaccination hesitancy: Descriptive statistics (cross-tabulations) based on current surveys to identify the size of vaccination-hesitancy-type groups and the size of an individuals' conformity and negativity bias. Literature based review on the effectiveness of governmental interventions targeted towards each subgroup of vaccination hesitance reasons.

Introduction

Current discussions on measures that might promote vaccination willingness are often based on rational behavior arguments. The underlying notion that also leads to rising tensions in the public is that non-vaccinated people either consciously refuse the vaccine or free ride by relying on sufficient vaccination in the rest of the population. Political measures that are discussed to encounter vaccination-hesitancy are mainly based on rational utility assumptions. However, literature on vaccination-hesitancy and survey results suggest, that behavioral biases and heuristics play a key role in the decision to get vaccination (Betsch, Böhm & Chapman, 2015). These findings could help in shaping the public awareness of different reasons for low vaccination willingness among non-vaccinated and could also help politics to take measures that directly address these different types in an effective way.

Problem

The pandemic has the potential to increase societal conflicts if citizens are perceived to act in a selfish way and if crisis management by democratic institutions is perceived as inadequate (Kühne et al., 2020). Finding a way to increase vaccination rates while at the same time

increasing societal consensus and peace is a major challenge. Political measures that might quickly solve the vaccination problem such as a mandatory vaccination or painful sanctions for non-vaccinated people might increase societal conflicts and lead to less acceptance of the vaccination. Considering the different types of reasons for vaccination-hesitancy and the size of each individual type might help politics in designing interventions that are targeted and thus more impactful, more accepted and less conflictful.

Previous literature

Behavioral explanations for vaccination hesitancy and their impact on governmental intervention have been discussed in detail (Betsch, Böhm & Chapman, 2015). Actual surveys try to analyze the willingness for voluntary vaccination against Covid-19 and the opinion on mandatory vaccination policies (Graeber, Schmidt-Petri & Schröder, 2021; Betsch et al. 2021). Given the vast amount of information on Covid-19 vaccines and the public attention towards the topic, subjective decisions on vaccinations may be biased by behavioral effects such as the negativity effect. More information on attitudes and vaccination intention might be helpful to better understand the actual situation. This study will contribute to the literature about communication of risk negation by offering a specific insight in the different vaccination-hesitancy-type groups. Betsch and Sachse (2013) studied the optimal communication of risk negation in light of the negativity bias. White et al. (2003) showed that a person was more inclined to believe a message if it was in line with his or her prior attitude. This conformity bias and the negativity bias are both likely to influence an individuals' vaccination intention. The importance of prior attitudes however may vary between the different hesitancy-groups.

The aim of the study is to provide a comprehensive overview of vaccination hesitancy types in terms of size. The survey results of the COSMO wave 46 that have been reported earlier (Betsch et al., 2021) already inform about the motive-question responses in terms of average responses on the scale from 1 to 7. Information on the share of respondents that rank higher or lower on those scales might contribute to a better public understanding of anti-vaccination types and easier identification of possible connections to other criteria or motives.

Materials and Methods

We want to use the data collected in the COSMO Germany study waves 46, 47, 48, 49 and 50 that provide information about actual attitudes regarding Covid-19 vaccination in Germany.

Variables

As the study has an explorative type, all variables assessed in the study waves 46 to 50 can deliver insights. The main focus will be on the vaccination intention, the 5C-related questions regarding motives for vaccination hesitancy. Also, all risk-perception related questions are of special interest. We want to use variable "BZGA_INFO_OVERLOAD_FREQ_NEG" (Denken Sie nochmal an die letzten 30 Tagen. Was würden Sie sagen, wie häufig handelte es sich um negative Aussagen rund um die Corona-Schutzimpfung in den Medien?) as a proxy variable to measure negativity bias.

Analysis Plan

A distinction between vaccinated and non-vaccinated people is necessary to compare motives and hesitancy-arguments among both groups. Risk perception for both groups should be analyzed and motives (5C) should be analyzed by groups and negativity bias. In addition we want to analyse if there are differences in the hesitancy-types between the vaccination decision

for the subjects themselves and for the subjects' children. The larger sample size for vaccination hesitancy regarding children might allow for more reliable information.

First preprocessing

The focus of the analysis will be on non-vaccinated subjects. That is why a division of the sample in vaccinated and non-vaccinated subjects will take place. However, analysis will be conducted with both groups.

First transformation

In order to assess the seize of hesitancy groups the variables concerning hesitancy type (5C) will be transformed:
Grouping of scale numbers 1 (stimme überhaupt nicht zu) to 3 and scale numbers 5 to 7 (stimme voll und ganz zu). The transformed variable encompasses group 1 (e.g. high confidence) and group 2 (e.g. low confidence)

Literature

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