Obedience behavior under the Coronavirus epidemic: Personality-related obedience toward two types of authority

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Abstract: This paper aims to study the people's obedience to different authorities and the relationship between personality and obedience in public health events, during the coronavirus outbreak in 2019-2020. In this work, agreeableness and conscientiousness are taken as the factors of personality and legitimate and expert are taken as the variables of authority. This work assumes that agreement and conscientiousness will be positively correlated with objectivity, and people's obedience to government is higher than that to experts. The different prediction results are obtained. It indicates that those who show strong consciousness and easygoing are more willing to obey the legal authority than the expert authority. However, different personalities have distinct degrees of obedience to different types of authority, and there is no correlation between them.

Keywords: Coronavirus epidemic, Obedience behavior, Authority, Personality, Milgram

1. Introduction

2019 the novel coronavirus (2019 novel coronavirus, 2019- nCoV) was discovered in December 2019 in Wuhan, China, and was named by WHO (World Health Organization, WH O) in January 12, 2020. In the following month, 2019- nCoV spread in Hubei Province, China and even other countries, causing thousands of cases and causing a certain degree of public panic. [1]Despite the great efforts made by China, the WHO has also released advertisements and suggestions. However, many people still ignore the existence of coronavirus. Several people understand the consequences of government actions, they still refuse to accept the government's regulations, both to themselves and to society. For example, some people do not wear masks in public places. There are even people who spit on the medical workers and police for telling them to wear masks. But there are also some people who are highly obeying to do something: wearing masks, staying at home, no party, no friend visits… People are obeying some kinds of authority. Because of the concern for similar phenomena, we will study obedience behavior under the novel coronavirus epidemic.

The Obedience Study conducted by Stanley Milgram [2] is a well known study about the obedience behavior, which provided a base for the methods of our study. The big idea of Milgram's study is that authority puts pressure on one to do something against his will. In Milgram's experiment, the participant is asked to give the "learner", who is in truth an actor, an electric shock every time the learner gave a wrong answer. An experimenter, which, in this case, is the authority, will make sure that the participant gives the shock. However, because Milgram's method of electrocution is criticized by many for its unethicality, we have to change our method of experiment. In our study, we replaced the electric shocks with an article that the participant will forward to his social media. The article that is to be forwarded, which are a substitution for electric shocks, will be related to information about the Coronavirus.

Further observation shows that there are actually two kinds of authorities that play big roles in guiding, or to say commanding, people: the experts authority and the government authority. Both government agencies and professional experts are constantly sending messages regarding coronavirus, guidelines, and orders to people. A report by Thomas Blass provided further details of our study.[3]Out of the six possible types of authority, including rewarding, coercive, legitimate, referent, expert, and informational, we chose to have two types of authority as an independent variable: legitimate and expert. We found two notions of authorities that correspond with the notions of government and expert in the coronavirus outbreak period. We set the government as legitimate type in which participants believe the experimenter has right to control their actions, and we also set the expert type in which the participants perceive the experimenter as having some special knowledge or expertise. Hence, we formed our first

research question: In the global health emergency, is there a difference in obedience between the two authorities (government & expert)?

Another topic is personality. In our lives we observe that personality may have something to do with obedience. For example, some introverts often follow orders, while more extroverts may be less obedient. There is an article "Personality Predicts Obedience in a Milgram Paradigm" of Laurent Bègue about the relationship between personality and obedience: in the experiment, the researcher uses Big Five Mini-Markers questionnaire which is a test of personality.[4]In this study, there is also an experiment tested obedience of participants by requiring giving electric shock, to confirm their hypothesis that "Conscientiousness and Agreeableness would be associated with willingness to administer higher-intensity electric shocks to a victim." Which illustrates a higher obedience toward authority. We want to associate personality, especially agreeableness and conscientiousness, with obedience in our context. We want to test whether the hypothesis is true if the context of the experiment is changed. This leads to our second research question: In the global health emergency, does personality affect the obedience toward authority?

We couldn't study all five aspects of the big five personality traits. The French study "Personality Predicts Obedience in a Milgram Paradigm" provides a guideline for us. Their Results confirmed hypotheses that conscientiousness and agreeableness would be associated with willingness to administer higher‐intensity electric shocks to a victim.[4]Therefore, the two personality traits that our study will be on are agreeableness and conscientiousness.

Based on the above and previous studies, Our first hypothesis about personality are: 1a.Agreeableness is positively related to obedience. 1b.Conscientiousness is positively related to obedience. Due to the government is law driven, the experts are not. We further hypothesized that people's obedience to government is higher than that of expert.

2. Content

2.1 Method

2.1.1 Participants

300 college students aged 18 and over will be paid to participate in a face-to-face survey of their emotional conditions, behaviors and living experience during the epidemic. In order to ensure the health and safety of the experimenter and other subjects, we will know about the health of the subjects, and confirm that the subjects are healthy and have no bad habits such as drug use and alcohol abuse.

2.1.2 Procedure

*Interview section.*Participants will be informed that they will be interviewed about the epidemic. For the convenience of recording, in addition to the record of the interviewer, the content of interview will be recorded in the form of recording or video. Each interview will have one experimenter as the interviewer, and another experimenter represents the authority of the experiment. When the participant arrives, the experimenter will assign him The NEO-PI-3, a revised NEO Personality Inventory [5]intended for individuals age 12 and older, which is questionnaire measures of a comprehensive model of general personality traits, the Five-Factor Model. Responses use a five-point Likert scale, from strongly disagree to strongly agree. The NEO-PI-3 inventory will scale participants on the five factors: Neuroticism (N), Extraversion (E), Openness to Experience (O), Agreeableness (A), and Conscientiousness (C).

The interview's content won't be used for result analysis.

Participants's obedience to authority and the feedback. When the interview ended, the participant will be informed that he has finished the experiment and need to wait for a moment. Then, another experimenter who may represent the expert or the government will come in to ask the participant share an article in their WeChat moments. The participant is going to be told that the article is the latest discovery of the epidemic condition released in the official accounts of this institute, which needs to be spread to inform more people. At the beginning, experimenter will not be identified (experts/government personnel). When the participant refuse to obey the request, the experimenter will respond with a sequence of feedback. Participants will randomly face either the expert type or the government type of feedback.

The feedbacks are always made in sequence: Only if Feedback 1 has been unsuccessful, can Feedback

2 be used. If the participant refuses to obey the order after Feedback 3, the experiment is terminated.

For expert type, there are 3 feedback:

Feedback 1: The information was based on our scientific research.

Feedback 2: It is predicted by the professor of our university to inform people more about the epidemic.

Feedback 3: The information is mainly provided by Doctor XXX, who is an expert in virology and has written many articles about it. For public health, please share it.

For government type, there are also 3 feedback:

Feedback 1: We must spread the information to inform the public about the latest information.

Feedback 2: We are licensed by the government to study about the pandemic. It is our responsibility to spread the information.

Feedback 3: We represent the government. We are authorized to spread the newest information.

If the participant immediately agrees to the experimenter's request, the experimenter will record the participant's obedience score as 4. For each additional feedback, the obedience score will be reduced by 1 point. Obedience can have a score of 0, which means disobedience.

The forwarding behavior will be stopped when the participant agrees or the experiment is terminated. Participants will get an explanation for the experiment.

Special feedbacks. If the participant asks if the experimenter can provide any documents to prove the truthfulness of the article, the experimenter will say: All the necessary information has been included in the article.

If the participant says that he wants to read the article first, the experimenter will reply:

Of course, but other participant of the experiment has arrived. So please browse it quickly. (The experimenter stops the participant's reading after 30 seconds.)

Post-experiment questionnaire. After being inform the truth of the experiment, the participants need to finish a short post-experiment questionnaire based on Prospect Theory of Obedience.[6] The questionnaire is about how much value participants think the request behavior has(V: Score in the range of [- 10,10]), Expectations for "wide spread"(E: Fully capable of implementing - 1. Can't implement - 0 at all), if the participant can complete forwarding behavior (Cl: Completely competent-1 Completely incompetent-0). It reflects the degree of obedience the subject measures according to his competence level and prospect value.

2.1.3 Predicted results

Hypothesis1a: Agreeableness is positively related to obedience.

Hypothesis 1b: Conscientiousness is positively related to obedience.

We will use correlation (formula 1.1) by SPSS to find out the relationship between consciousness, agreeableness and how much do people obey to authority. We comparing the score of agreeableness/conscientiousness and the score of obedience from two groups. The results are that all four values are close to 1, meaning that agreeableness and conscientiousness are highly related to the level of obedience. In addition, since the results are all positive number, we find out that the relationship is between two personalities and obedience is positive correlation—as x increases, y increases.

$$r = \frac{N \sum x_i y_i - \sum x_i \sum y_i}{\sqrt{N \sum x_i^2 - (\sum x_i)^2} \sqrt{N \sum y_i^2 - (\sum y_i)^2}} \qquad (1)$$

Hypothesis 2: People's obedience to government is higher than that of expert.

For this hypothesis, we will use the "prospect theory" (formula 2.1). According to the "prospect theory" proposed by Daniel Kahneman in 1974 to explain people's risk decision-making behavior. Obedience is determined by ability level and expectation. From the formula 1.2, Vp is prospect value (the average of the algebraic sum of the product of value and expectation). Due to the formula 2.2 of Vp, the mathematical model of the "Prospect theory" is formula 2.3. Od is the Obedience Degree, Cl (0 or 1) is Competence Level, V ([- 10,10]) is value, E(0 or 1) is Expectancy.

$$Od = Cl \times Vp \qquad (2)$$

$$Vp = \frac{1}{n}\sum_{i=1}^{n} ViEi \qquad (3)$$

$$Od = \frac{Cl}{n}\sum_{i=1}^{n} ViEi \qquad (4)$$

On the basis of the Post-experiment questionnaire, we can get the number of Cl, V and E. So that we can get every participant's obedience degree. Next, we will determine which authority is represented by the experimenter corresponding to the participant, and square the obedience score and obedience degree of the participant respectively. We predict that both mean scores of the government group will be larger than those of the expert group respectively.

We will also use variance analysis to compare the mean of obedience scores in two groups (one is for expert, the other is for government). First, we will set "a" as 0.05, we will compare "people's average score of agreeableness/conscientiousness from two groups", we will set H0 and H1 as the hypothesis:

H0: $\mu 1=\mu 2=\ldots=\mu r$

H1: $\mu=\mu 1, \mu 2, \ldots, \mu r$

Then we will calculate the values of F and Fa, and if both F of them are smaller than Fa, we refuse H0. So that our predicted result will realize, which is they have significant differences.

The alternative explanation is that if two types of obedience scores and the score of two personalities are not correlated, we think the reason maybe is that the context of the articles we read before is not based on health care, so the personalities may not be correlated with obedience. Also, the nature of assignment is different. In Milgram's experiment, people's assignment is electric shock, and this brings direct mortal pressure to participants, but our assignment is to share an article, which indirectly brings people pressure of the ability of critical thinking. Therefore this may lead to the result that different personalities. The third explanation is that maybe at that time, the government loses its credibility, so people will not trust it and obey it.

we also discuss that if Differences in personality have no significant effect on people's obedience to the two different authorities. We will use the Variance for analysis to work with data by SPSS (Similar to the variance analysis in hypothesis 2). If F>Fa, we accept H0. Therefore, they have no significant differences, which is our predicted result of it.

3. Conclusion

In this study, the hypotheses proposed are consistent with the expected results. That is to say, agreeableness and conscientiousness and obedience in personality factors are positively related to obedience, according to the calculation mentioned. In addition, people's obedience to government is higher than that of the expert. It need to be verified by the prospect theory.

This experiment helps us to understand the degree of obedience of people with agreeableness and conscientiousness to authority in public health events. For more than 50 years, social psychology and personalistic psychology have been trying to reveal the role of personality in obedience behavior. [6]Our results provide new empirical evidence that individual differences in agreeableness and conscientiousness are important. These experimental results can be used for reference in other experiments, such as discussing the relationship between personality and rebellion, as well as the relationship between other personalities and obedience.

Besides, this experiment can give the relevant departments or the government corresponding enlightenment, so that in the process of giving some instructions or regulations promulgation in public health events, they can more effectively consider whether they should combine multiple forces to help the relevant departments better carry out effective instructions in public health events. It can also provide some enlightenment for the government or authorities to gain political trust and get public obedience in public health events.

One of the limitation of this study is the inclusion of mostly educated college students. In order to confirm that these relations between personality and different types of authority exist beyond this sample under the situation of a public health emergency, research using more diverse samples should be utilized.

Also, this work only looks at one time point. We have begun to take the first step in understanding the relation between personality and different types of authority, yet how would people's act changes and develops throughout the outbreak period still remains unknown. Will people's obedience always

remain the same? Or will their attitudes change as the epidemic develops? Future longitudinal research will be able to assess causal directions.

Additionally, it is important to further investigate multiple aspects of people's obedience. We can't speculate that people will obey the rules to wear masks and not to go to party just because they obey the request to post the message during the outbreak. We need to take into account multiple perspectives, multiple tasks with different degrees of obedience and continue to compare those perspectives.

As a final point, an important limitation of this work is that it does not test the situation when the two kinds of authorities (legitimate authority and expert authority) combines together. In real situations, governments often use both types of authority simultaneously to give instructions and advocacy to people. Subsequent experiments should test whether people's obedience will increase when two kinds of authority are used at the same time, so as to guide the actual situation.

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